Report No.: DDT-R19062407-1E3

Issued Date: Jul. 07, 2019

EN 300 328 RADIO TEST REPORT

FOR

Applicant	:	Edifier International Limited
Address	:	P.O. Box 6264 General Post Office Hong Kong
Equipment under Test	:	Gaming speakers
Model No.	:	G2000
Trade Mark	:	EDIFIER, HECATE
Manufacturer	:	Dongguan Edifier Esports Technology Co., Ltd.
Address	:	5th floor, Office Building in the 1st district, No. 2, East Industry Road, Songshan Lake Science & Technology Industrial Park, Dongguan, 523808, CHINA

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel: +86-0769-38826678, **E-mail:** ddt@dgddt.com, http://www.dgddt.com

REPORT

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TEST REPORT DECLARE

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Equipment under Test	:	Gaming speakers
Model No.	:	G2000
Trade mark	:	EDIFIER, HECATE
Manufacturer	:	Dongguan Edifier Esports Technology Co., Ltd.
Address	:	5th floor, Office Building in the 1st district, No. 2, East Industry Road, Songshan Lake Science & Technology Industrial Park, Dongguan, 523808, CHINA
Factory	:	Dongguan Edifier Technology Co., Ltd.
Address	:	No.2 Gongyedong Road, Songshan Lake Sci&Tech Industry Park, Dongguan, Guangdong 523808, PR.China

Test Standard Used: EN 300 328 V2.1.1 (2016-11)

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment In Accordance with EN 300 328 V2.1.1 about the effective uses allocated spectrum requirements of Directive 2014/53/EU.

Report No.:	DDT-R19062407-1E3		
Date of Receipt:	Jun. 27, 2019	**Date of Test:**	Jun. 27, 2019 ~ Jul. 07, 2019

Prepared By: ***Approved By:***

Ella Gong

Ella Gong/Engineer ***Damon Hu/EMC Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision history

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Jul. 07, 2019	

1. Summary of test results

1.1. Standard description

EN 300 328 V2.1.1: Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

1.2. Test result

Harmonized Standard EN 300 328 The following essential requirements and test specifications are relevant to the presumption of conformity under Article 3.2 of the RED Directive				
No	**Test Parameter**	**Clause No**	**Condition**	**Results**
1	RF Output Power	4.3.1.2 or 4.3.2.2	Apply all equipment	PASS
2	Power Special Density	4.3.2.3	Only for equipment using wide band modulations other than FHSS	N/A
3	Duty Cycle, Tx-Sequence, Tx-gap	4.3.1.3 or 4.3.2.4	Only for≥10dBm and non-Adaptive	N/A
4	Accumulated Transmit time, Frequency Occupation & Hopping Sequence	4.3.1.4	Only for FHSS equipment	PASS
5	Hopping Frequency Separation	4.3.1.5	Only for FHSS	PASS
6	Medium Utilisation	4.3.1.6 or 4.3.2.5	Only for≥10dBm and non-Adaptive	N/A
7	Adaptive	4.3.1.7 or 4.3.2.6	Only for≥10dBm and adaptive	N/A
8	Occupied Channel Bandwidth	4.3.1.8 or 4.3.2.7	Apply all equipment	PASS
9	Transmitter unwanted emissions in the OOB domain	4.3.1.9 or 4.3.2.8	Apply all equipment	PASS
10	Transmitter unwanted emissions in the spurious domain	4.3.1.10 or 4.3.2.9	Apply all equipment	PASS
11	Receiver spurious emissions	4.3.1.11 or 4.3.2.10	Apply all equipment	PASS
12	Receiver Blocking	4.3.1.12 or 4.3.2.11	Apply all equipment	PASS
13	Geo-location capability	4.3.1.13 or 4.3.2.12	Only for equipment with geo-location capability	N/A
Note: N/A is an abbreviation for Not Applicable and means this test item is not applicable for this device according to the technology characteristic of device.				

2. General test information

2.1. Description of EUT

EUT* Name	:	Gaming speakers
Model Number	:	G2000
EUT function description	:	Please reference user manual of this device
Power supply	:	DC 12 V from external AC Adapter
Hardware Version	:	N/A
Software Version	:	N/A
Radio Specification	:	Bluetooth V5.0 without BLE
Operation frequency	:	2402 MHz-2480 MHz
Modulation	:	GFSK, π/4-DQPSK
Data rate	:	1 Mbps, 2 Mbps
Antenna Type	:	Integrated PCB antenna, maximum PK gain: 2.59 dBi
Sample Type	:	Series production

Note: EUT is the ab. of equipment under test.

2.2. Accessories of EUT

Assistant equipment	Manufacturer	Model number	Parameter	Remark
AC Adapter	Beijing Edifier Technology Co., Ltd.	ADT-20120 EU	Input: 100-240V ~50/60Hz, 0.7A; Output: DC 12V, 1.65A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Notebook	DELL	Latitude D610	FCC DOC	00045-534-136-300

2.4. Block diagram of EUT configuration for test



The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.
Test software: FCCAssist 2.4.EXE

Tested mode, channel, information		
Mode	Channel	Frequency (MHz)
GFSK hopping on Tx mode	CH0 to CH78	2402 to 2480
π/4-DQPSK hopping on Tx mode	CH0 to CH78	2402 to 2480
GFSK hopping off Tx mode	LCH: CH0	2402
	MCH: CH39	2441
	HCH: CH78	2480
π/4-DQPSK hopping off Tx mode	LCH: CH0	2402
	MCH: CH39	2441
	HCH: CH78	2480

2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

/	Normal Conditions	Extreme Conditions
Temperature range	21-25 ℃	-10 ℃ to +45 ℃
Humidity range	40-75%	N/A
Pressure range	86-106 kPa	N/A
Power supply	NV: AC 230V	N/A
Note: The Extreme temperature range and extreme voltages are declared by the manufacturer.		

2.6. Deviations of test standard

No Deviation.

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

FCC Designation Number: CN1182; FCC Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

2.8. Measurement uncertainty

Test Item	Uncertainty
Occupied Channel Bandwidth	1.1%
RF Output power, conducted	0.74 dB
Power Spectral Density, Conducted	0.74 dB
Unwanted Emissions, Conducted	0.86 dB (10 MHz ≤ f < 3.6 GHz);

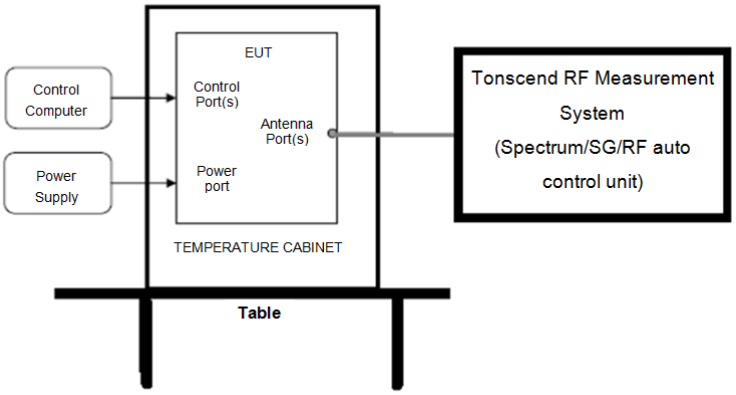
	1.40 dB (3.6 GHz≤ f < 8 GHz)
	1.66 dB (8 GHz≤ f < 22 GHz)
Temperature	0.4 ℃
Humidity	2%
DC and Low frequency voltage	1.0%
Time	0.6%
Duty Cycle	0.6%
Radiated Spurious Emissions (Substitution method)	3.57 dB
Radiated Spurious Emissions (Pre-correction method)	4.14 dB (30 MHz-1 GHz)
	5.32 dB (1 GHz-18 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment used during test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Connected Test (Tonscend RF Measurement System)					
Spectrum analyzer	R&S	FSU26	200071	Oct. 12, 2018	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jun. 25, 2019	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Oct. 12, 2018	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jun. 25, 2019	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Oct. 21, 2018	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Oct. 23, 2018	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Aug. 18, 2018	1 Year
Attenuator	Mini-Circuits	BW-S10W2	101109	Aug. 18, 2018	1 Year
RF Cable	Micable	C10-01-01-1	100309	Oct. 21, 2018	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Oct. 21, 2018	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
Radiated Emission Test Chamber 1#					
EMI Test Receiver	R&S	ESU8	100316	Oct. 12, 2018	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 25, 2019	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 09, 2018	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Oct. 20, 2018	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 16, 2018	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Oct. 25, 2018	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Oct. 12, 2018	1 Year
Pre-amplifier	TERA-MW	TRLA-0040G35	101303	Oct. 12, 2018	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Oct. 21, 2018	1 Year
RF Cable	N/A	SMAJ-SMAJ-1M + 11M	17070133+17070131	Nov. 08, 2018	1 Year
MI Cable	HUBSER	C10-01-01-1M	1091629	Oct. 21, 2018	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4. RF Output Power

4.1. Block diagram of test setup



4.2. Limits

The maximum RF output power for adaptive Frequency Hopping equipment shall be equal to or less than 20 dBm.
The maximum RF output power for this equipment shall be equal to or less than the value declared by the manufacturer. This declared value shall be equal to or less than 20 dBm.
This limit shall apply for any combination of power level and intended antenna assembly.

4.3. Test Procedure

(1) Connect each EUT's antenna output to power sensor by RF cable and attenuator.

(2) Refer to EN 300 328 V2.1.1 Clause 5.4.2.2.1.

(3) For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) is captured.

4.4. Test Result

GFSK Modulation					
Test conditions		Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
Voltage (V)	Temperature (℃)				
NV	LT	1.13	3.72	20.00	Pass
	NT	0.49	3.08		
	HT	1.19	3.78		
π/4-DQPSK Modulation					
Test conditions		Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
Voltage (V)	Temperature (℃)				
NV	LT	0.71	3.30	20.00	Pass
	NT	1.05	3.64		
	HT	0.47	3.06		
Note: EIRP = Measured Highest Pburst Values + Antenna Gain					

5. Accumulated Transmit time, Frequency Occupation & Hopping Sequence

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

The Dwell Time is the time that a particular hopping frequency would be occupied by the transmitter during a single hop. The equipment itself is not required to transmit on this hopping frequency during the Dwell Time.
For this Adaptive frequency hopping systems, the maximum accumulated dwell time on any hopping frequency shall be 400 ms within any period of 400 ms multiplied by the minimum number of hopping frequencies (79) that have to be used.

The Minimum Frequency Occupation Time shall be equal to one dwell time within a period not exceeding four times the product of the dwell time per hop and the number of hopping frequencies in use.

5.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable and an attenuator.
(2) Refer to EN 300 328 V2.1.1 Clause 5.4.4
(3) JS Tonscend test software is used to control the spectrum analyzer to use the following settings:

Centre Frequency:	Equal to the hopping frequency being investigated
Frequency Span:	0 Hz
RBW:	~ 50 % of the Occupied Channel Bandwidth
VBW:	≥ RBW
Detector Mode:	RMS
Sweep time:	Auto
Trace Mode	Max Hold

5.4. Test Result

Accumulated Dwell Time

Test Mode	Test Channel	Ant	Accumulated Dwell time [ms]	Limit [ms]	Verdict
DH5	2402	Ant1	288.604	<=400	PASS
DH5	2480	Ant1	270.698	<=400	PASS
2DH5	2402	Ant1	290.710	<=400	PASS
2DH5	2480	Ant1	315.989	<=400	PASS
Note: Save the trace data to a file for further analysis by a computing device using an appropriate software application.					

Minimum Frequency Occupation

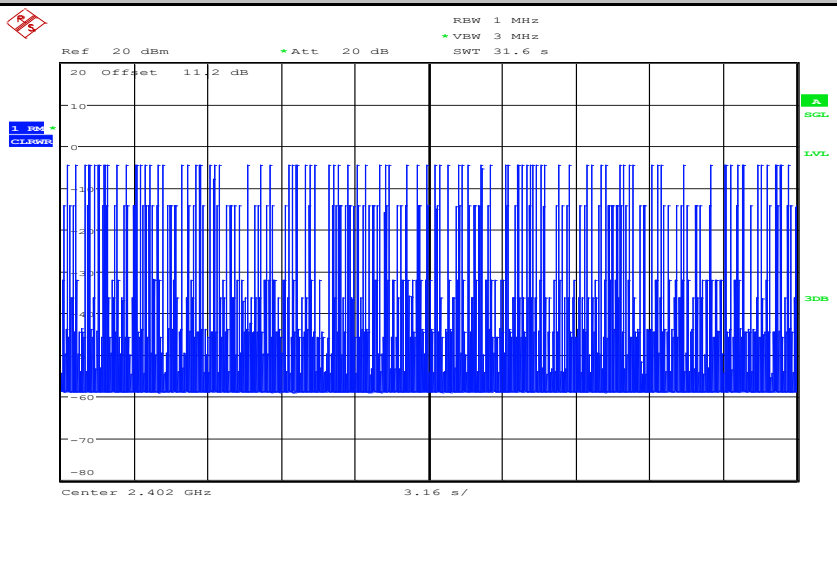
Channel	Modulation	Frequency occupation times (N)	Limit (N)	Result
LCH	GFSK	5	≥1	Pass
HCH		4		Pass
LCH	π/4-DQPSK	4		Pass
HCH		4		Pass

Hopping Sequence

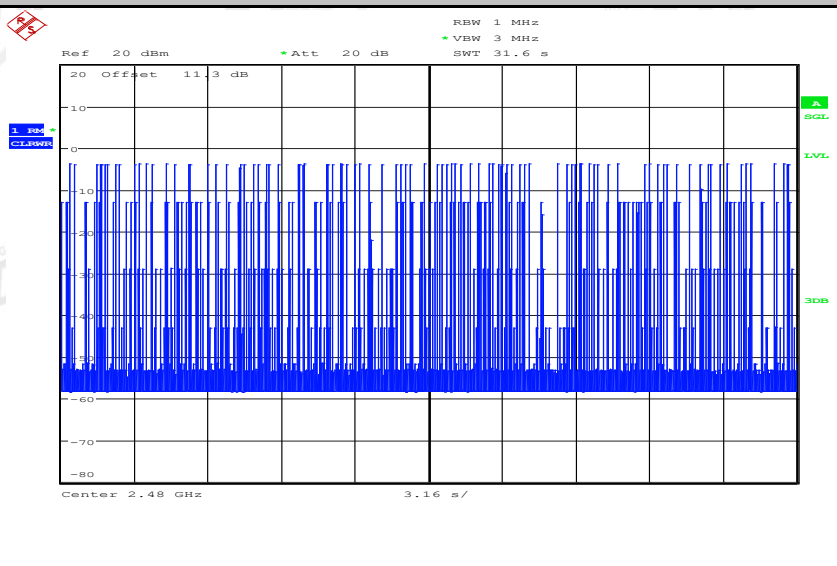
Modulation	Number of Hopping Channel	Limit	-20 dB Bandwidth (%)	Limit	Result
GFSK	79	≥15	95.60	70 % of the band 2400MHz-2483.5MHz	Pass
π/4-DQPSK	79		96.10		

5.5. Original test data

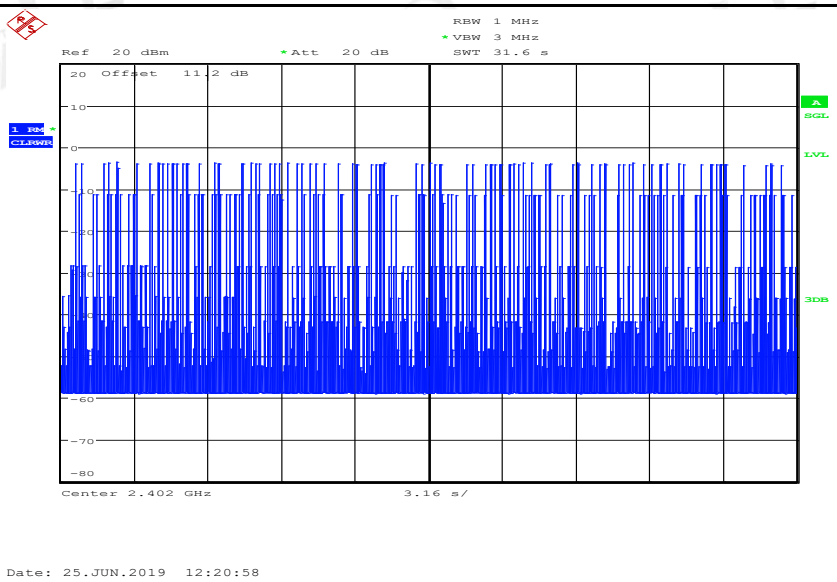
Accumulated Dwell time_TNVN_DH5_2402_Ant1



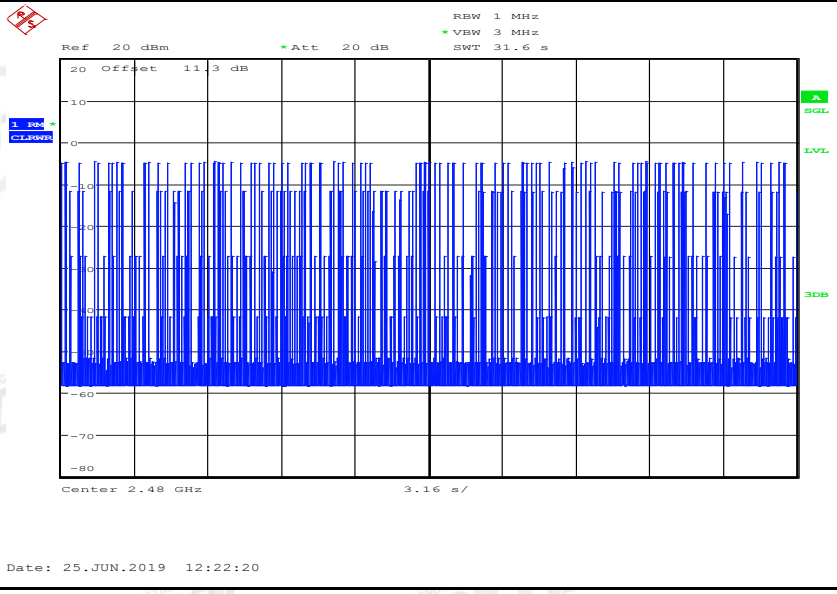
Accumulated Dwell time_TNVN_DH5_2480_Ant1



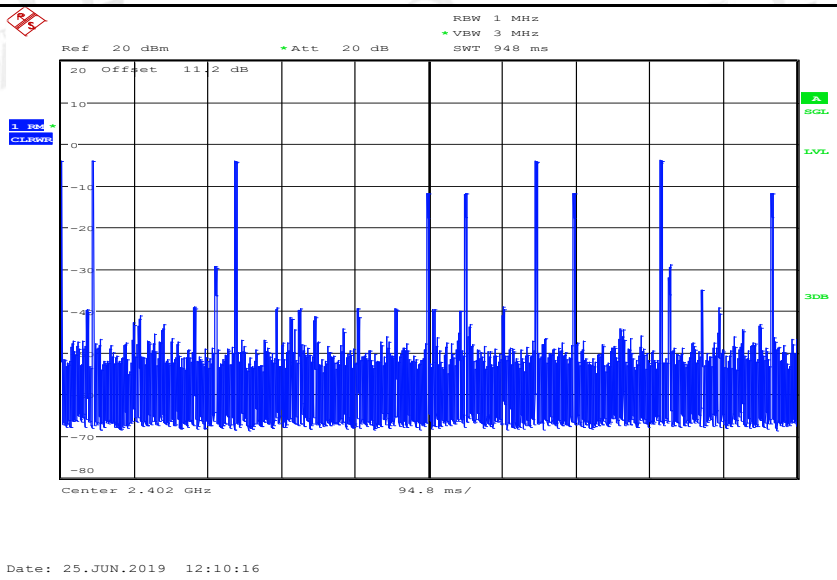
Accumulated Dwell time_TNVN_2DH5_2402_Ant1



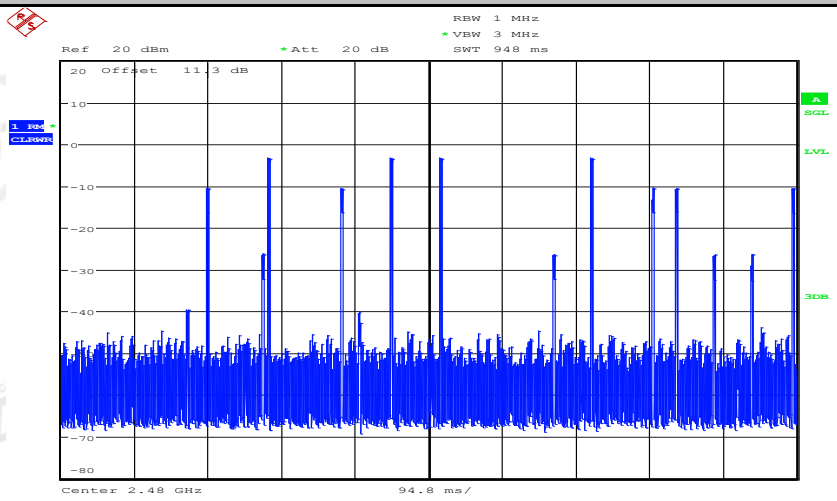
Accumulated Dwell time_TNVN_2DH5_2480_Ant1



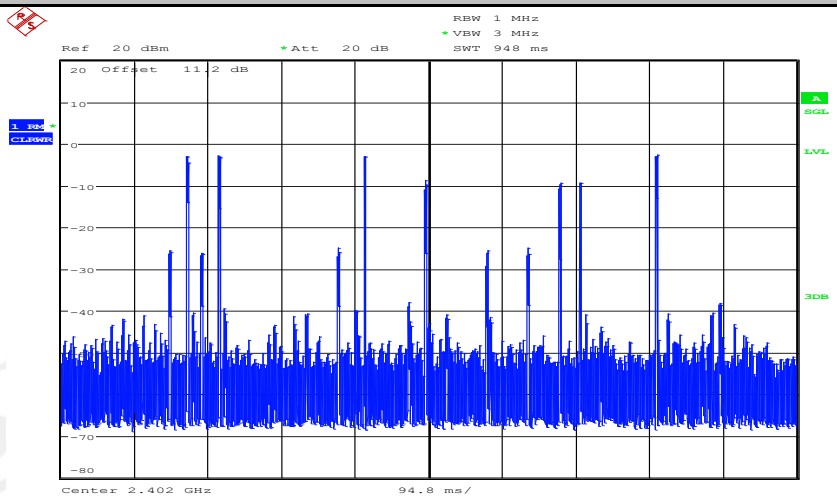
Minimum Frequency Occupation_TNVN_DH5_2402_Ant1



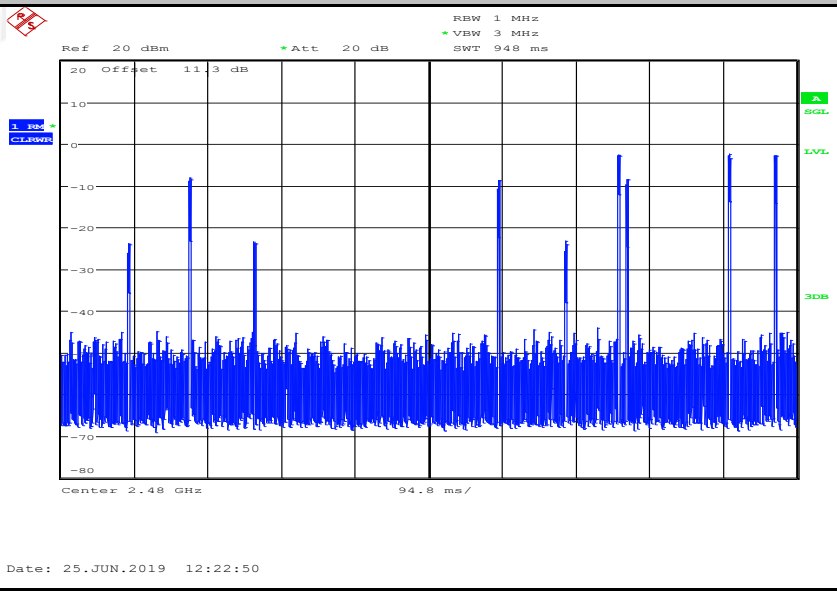
Minimum Frequency Occupation_TNVN_DH5_2480_Ant1



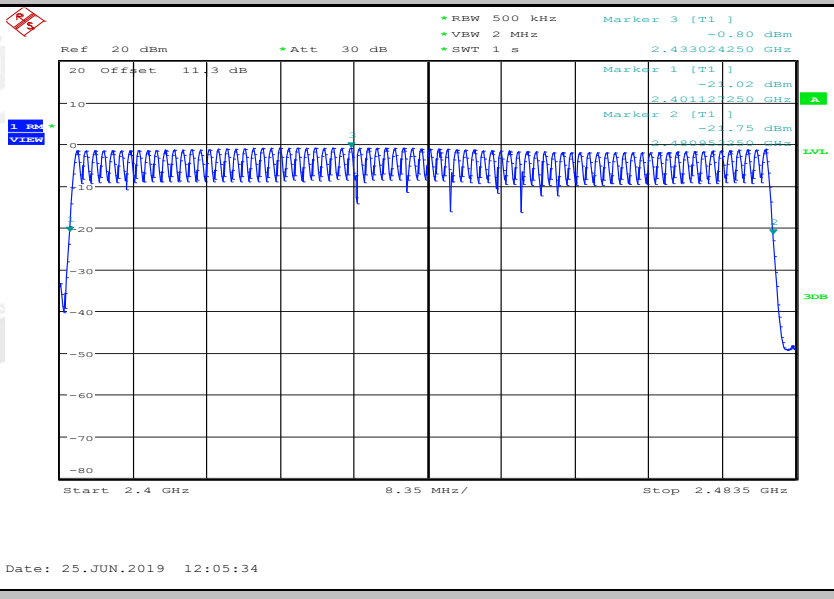
Minimum Frequency Occupation_TNVN_2DH5_2402_Ant1



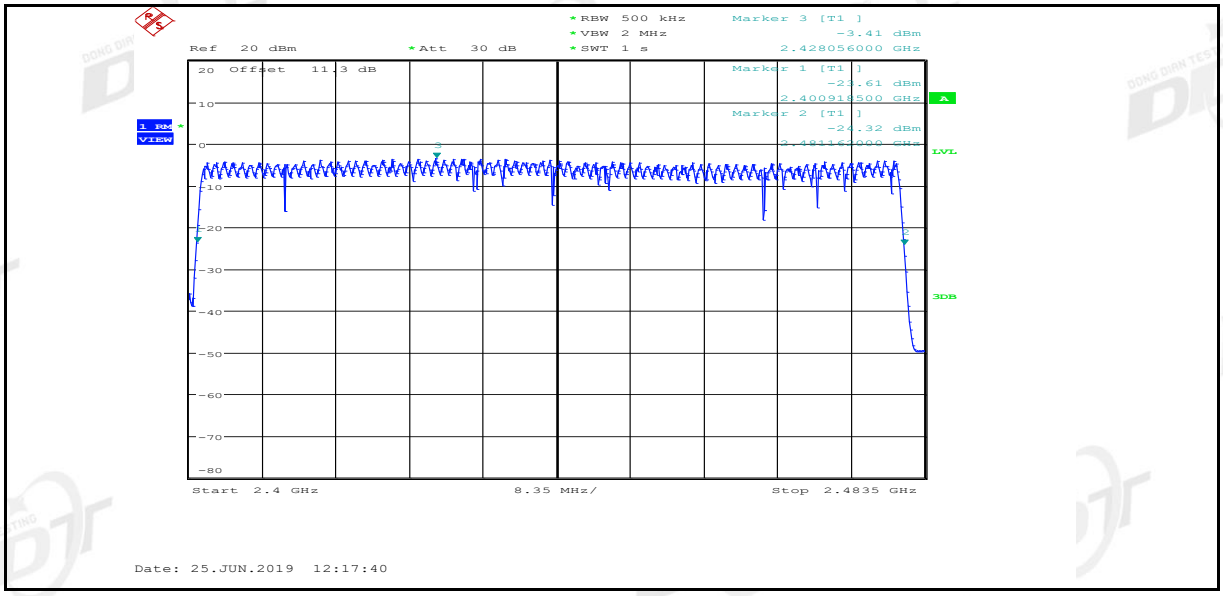
Minimum Frequency Occupation_TNVN_2DH5_2480_Ant1



Hopping Sequence_TNVN_DH5_Ant1



Hopping Sequence_TNVN_2DH5_Ant1


RBW 500 kHz
VBW 2 MHz
SWT 1 s
Marker 3 [T1]
-3.41 dBm
2.428056000 GHz
Marker 1 [T1]
-23.61 dBm
2.400918500 GHz
Marker 2 [T1]
-24.32 dBm
2.481162000 GHz
Ref 20 dBm
Att 30 dB
Offset 11.3 dB
1 RM
VIEW
A
LVL
3DB
Start 2.4 GHz
8.35 MHz/
Stop 2.4835 GHz
Date: 25.JUN.2019 12:17:40

6. Hopping Frequency Separation

6.1. Block diagram of test setup

Same as section 4.1

6.2. Limits

(1) For adaptive frequency hopping systems the minimum hopping frequency separation shall be 100 kHz.

(2) For equipment with a maximum declared RF Output power level of less than 10 dBm e.i.r.p. or for non-adaptive Frequency Hopping equipment operating in a mode where the RF Output power is less than 10 dBm e.i.r.p. only the minimum Hopping Frequency Separation of 100 kHz applies.

6.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable and attenuator.

(2) Configure EUT work in normal hopping mode.

(3) Set the spectrum analyzer as follows:

Centre Frequency:	Centre of the two adjacent hopping frequencies
Frequency Span:	Sufficient to see the complete power envelope of both hopping frequencies
RBW:	1 % of the Span
VBW:	3 × RBW
Detector Mode:	Max Peak
Sweep time:	Auto
Trace Mode:	Max Hold

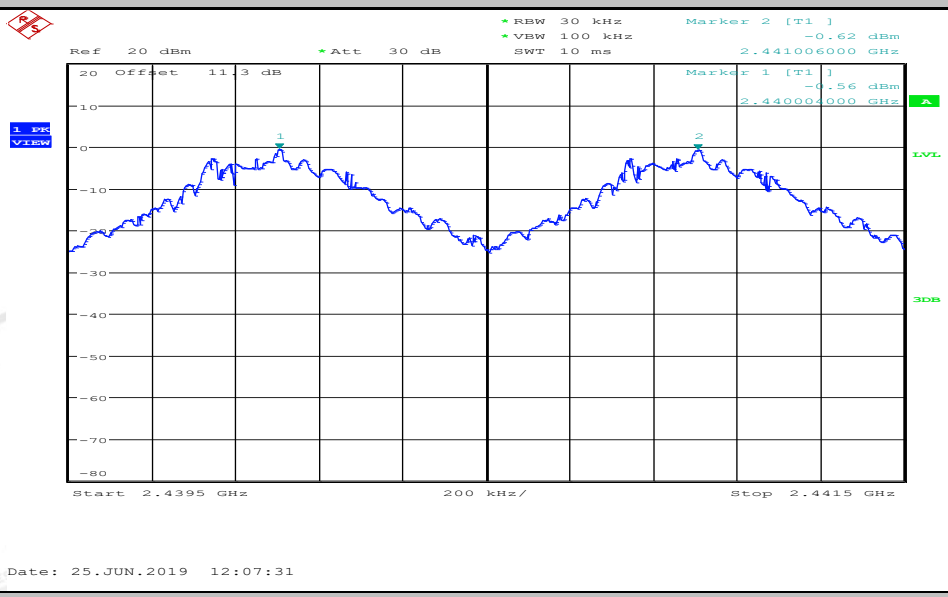
(4) When the trace has completed, Use the marker-delta function to determine the Hopping Frequency Separation between the peaks of the two adjacent hopping frequencies.

6.4. Test Result

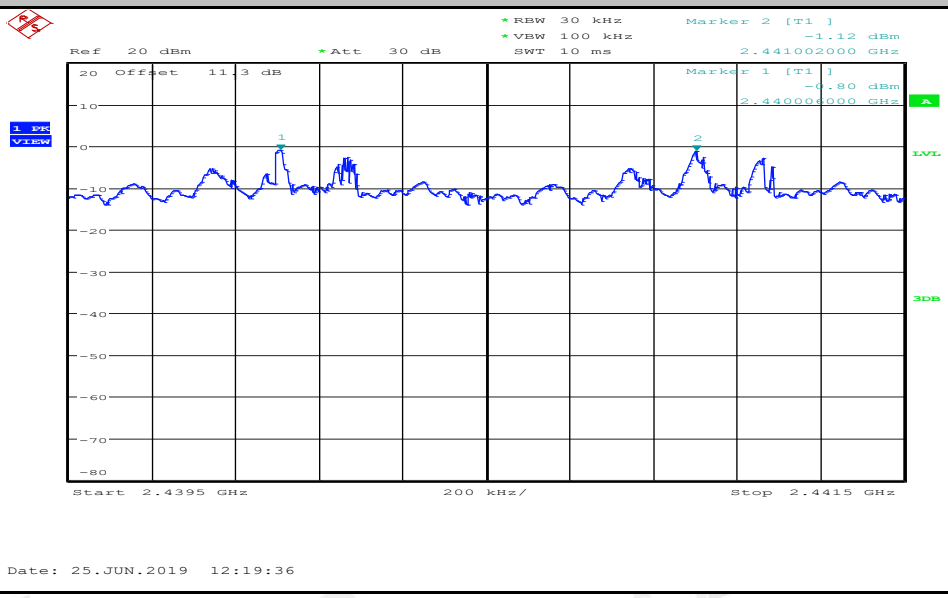
Modulation	Channel	Channel Separation (MHz)	Limit(kHz)	Result
GFSK	N/A	1.002	≥100	Pass
π/4-DQPSK	N/A	0.996		Pass

6.5. Original test data

Hopping Frequency Separation_TNVN_DH5_2441_Ant1



Hopping Frequency Separation_TNVN_2DH5_2441_Ant1



7. Occupied Channel Bandwidth

7.1. Block diagram of test setup

Same as section 4.1

7.2. Limits

The Occupied Channel Bandwidth for each hopping frequency shall fall completely within the band 2400MHz to 2483.5MHz for this device.

7.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable and attenuator.

(2) Configure EUT work in lowest and highest hopping frequency.

(3) Set the spectrum analyzer as follows:

Centre Frequency:	The centre frequency of the channel under test
Frequency Span:	2 × Occupied Channel Bandwidth
RBW:	~ 1 % of the span without going below 1 %
VBW:	3 × RBW
Detector Mode:	RMS
Sweep time:	1s
Trace Mode:	Max Hold

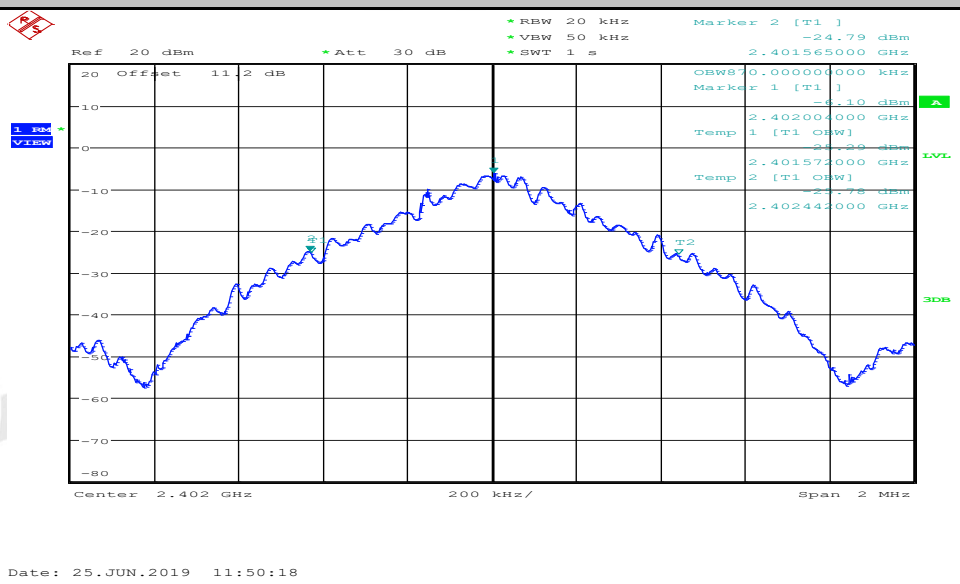
(4) When the trace has completed, use the 99% bandwidth function of the spectrum analyzer to measure the occupied channel bandwidth of the EUT.

7.4. Test Result

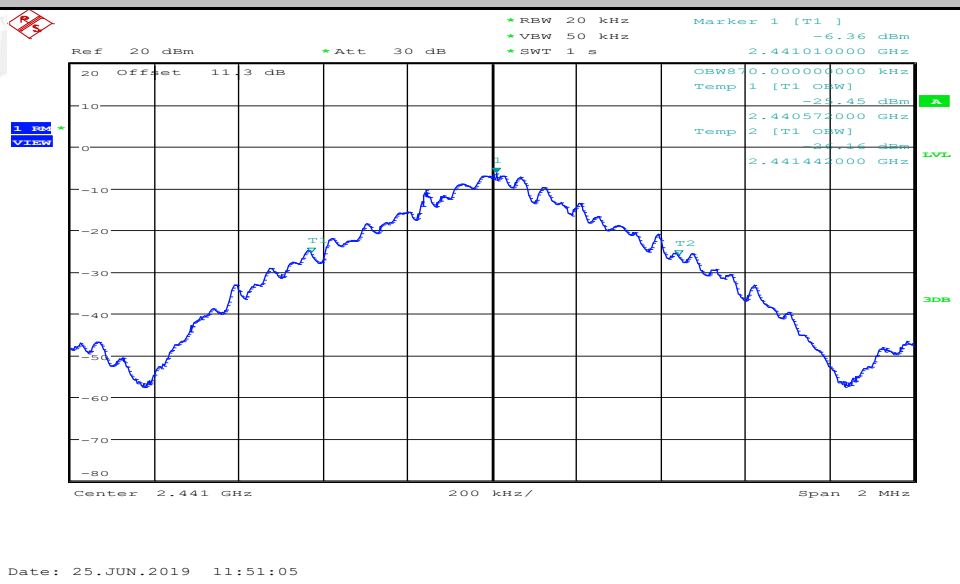
Modulation	Channel	OBW [MHz]	FL@OBW	FH@OBW	Verdict
GFSK	LCH	0.870	2401.565	---	PASS
GFSK	MCH	0.870	---	---	PASS
GFSK	HCH	0.870	---	2480.435	PASS
π/4-DQPSK	LCH	1.192	2401.404	---	PASS
π/4-DQPSK	MCH	1.192	---	---	PASS
π/4-DQPSK	HCH	1.192	---	2480.596	PASS

7.5. Original test data

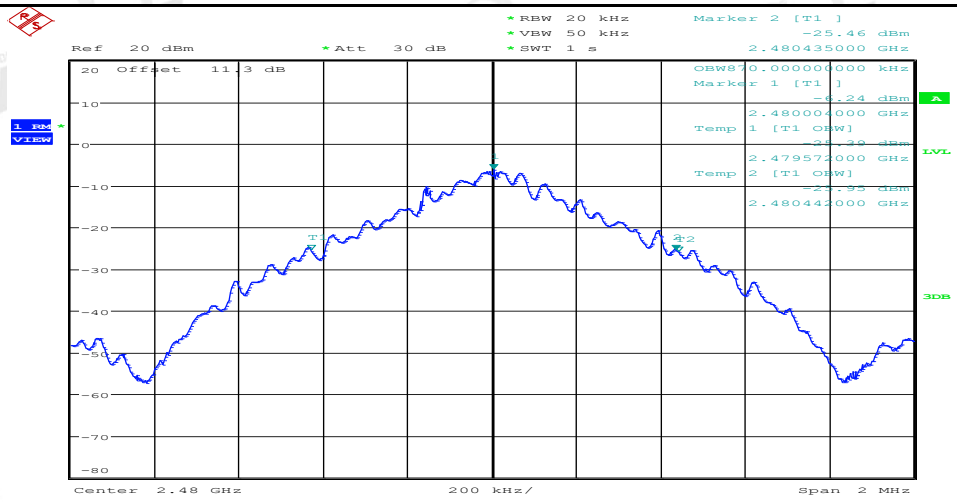
Occupied Channel Bandwidth_TNVN_DH5_2402_Ant1



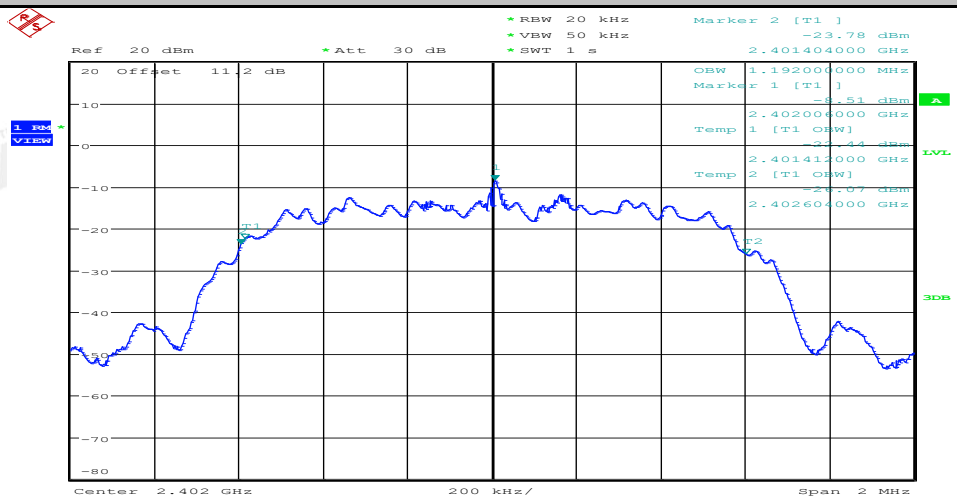
Occupied Channel Bandwidth_TNVN_DH5_2441_Ant1



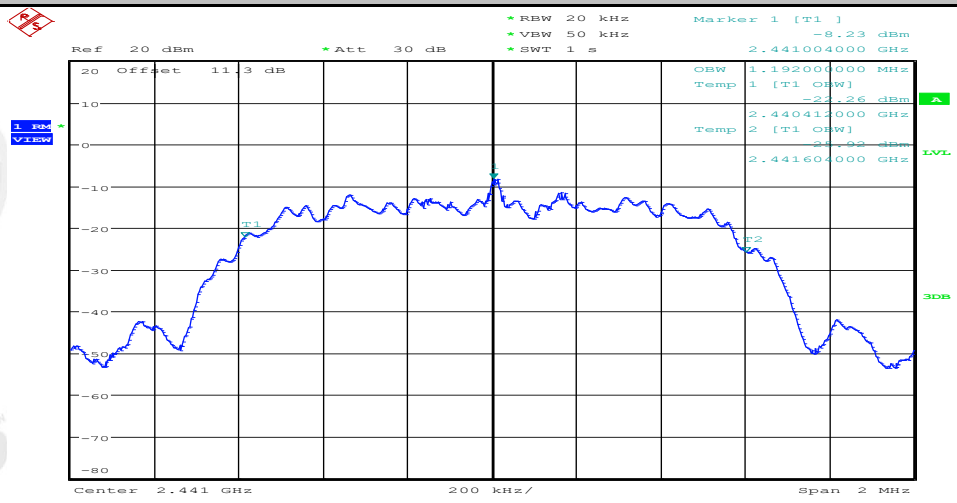
Occupied Channel Bandwidth_TNVN_DH5_2480_Ant1



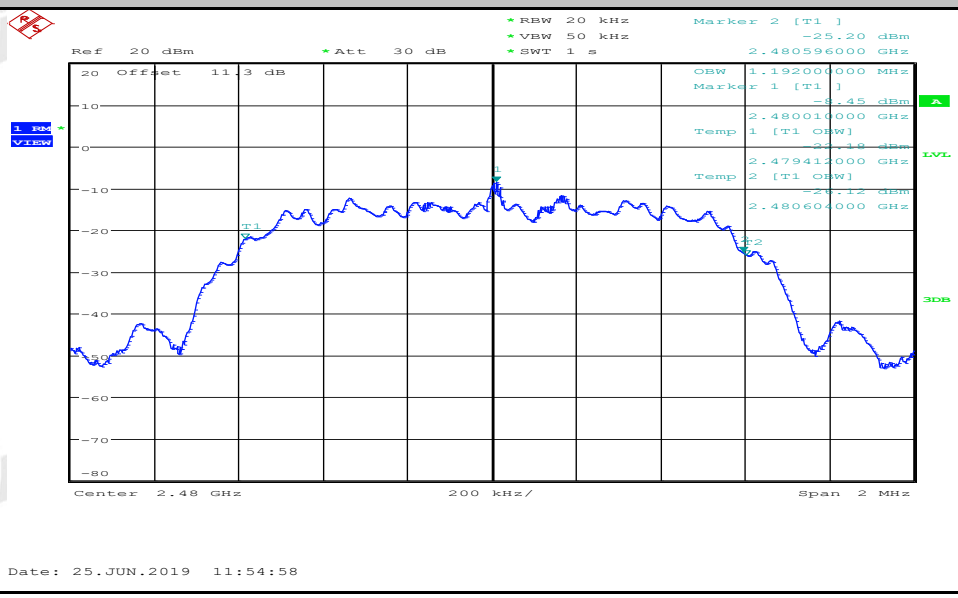
Occupied Channel Bandwidth_TNVN_2DH5_2402_Ant1



Occupied Channel Bandwidth_TNVN_2DH5_2441_Ant1



Occupied Channel Bandwidth_TNVN_2DH5_2480_Ant1



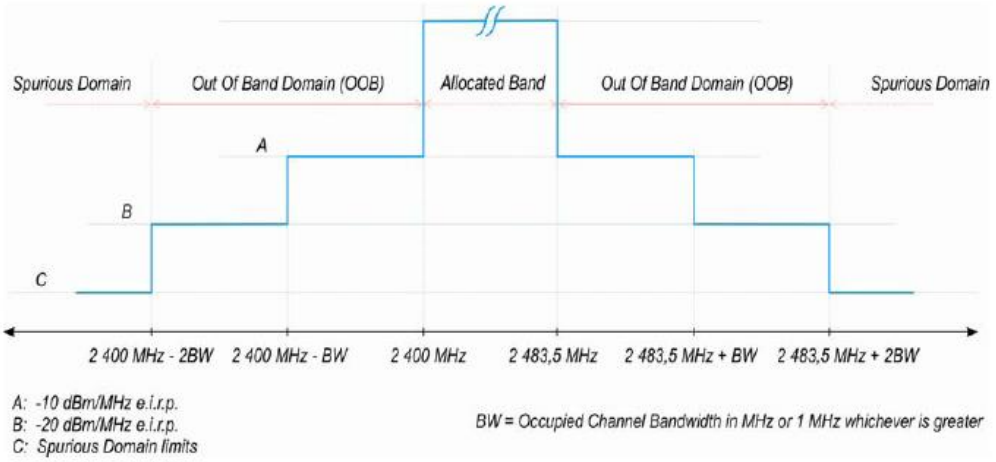
8. Transmitter unwanted emissions in the out-of-band domain

8.1. Block diagram of test setup

Same as section 4.1

8.2. Limits

The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask below:



8.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable and attenuator.

(2) Configure EUT work in normal hopping mode.

(3) Refer to EN 300 328 V2.1.1 clause 5.4.8.2

8.4. Test Result

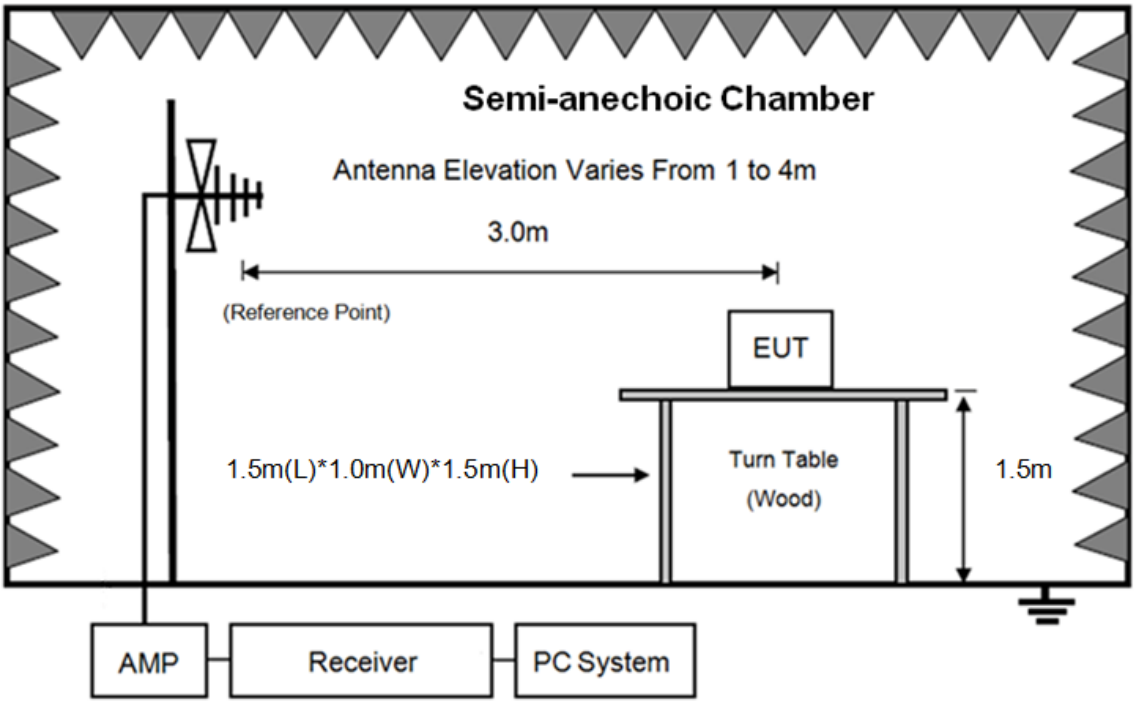
Test Condition	Test Mode	Test Channel	Ant	Freq [MHz]	Result [dBm]	Limit [dBm]	Verdict
TNVN	DH5	2402	Ant1	2398.500	-50.19	<=-20	PASS
TNVN	DH5	2402	Ant1	2399.500	-48.57	<=-10	PASS
TNVN	DH5	2402	Ant1	2484.000	-49.07	<=-10	PASS
TNVN	DH5	2402	Ant1	2485.000	-53.13	<=-20	PASS
TNVN	DH5	2480	Ant1	2398.500	-53.77	<=-20	PASS
TNVN	DH5	2480	Ant1	2399.500	-48.15	<=-10	PASS
TNVN	DH5	2480	Ant1	2484.000	-50.49	<=-10	PASS
TNVN	DH5	2480	Ant1	2485.000	-53.22	<=-20	PASS
TNVN	2DH5	2402	Ant1	2398.116	-47.37	<=-20	PASS
TNVN	2DH5	2402	Ant1	2398.308	-48.63	<=-20	PASS
TNVN	2DH5	2402	Ant1	2399.308	-47.83	<=-10	PASS

TNVN	2DH5	2402	Ant1	2399.500	-47.31	<=-10	PASS
TNVN	2DH5	2402	Ant1	2484.000	-46.90	<=-10	PASS
TNVN	2DH5	2402	Ant1	2484.192	-49.68	<=-10	PASS
TNVN	2DH5	2402	Ant1	2485.192	-49.34	<=-20	PASS
TNVN	2DH5	2402	Ant1	2485.384	-46.63	<=-20	PASS
TNVN	2DH5	2480	Ant1	2398.116	-49.15	<=-20	PASS
TNVN	2DH5	2480	Ant1	2398.308	-50.49	<=-20	PASS
TNVN	2DH5	2480	Ant1	2399.308	-51.22	<=-10	PASS
TNVN	2DH5	2480	Ant1	2399.500	-38.32	<=-10	PASS
TNVN	2DH5	2480	Ant1	2484.000	-47.51	<=-10	PASS
TNVN	2DH5	2480	Ant1	2484.192	-51.86	<=-10	PASS
TNVN	2DH5	2480	Ant1	2485.192	-48.84	<=-20	PASS
TNVN	2DH5	2480	Ant1	2485.384	-47.84	<=-20	PASS

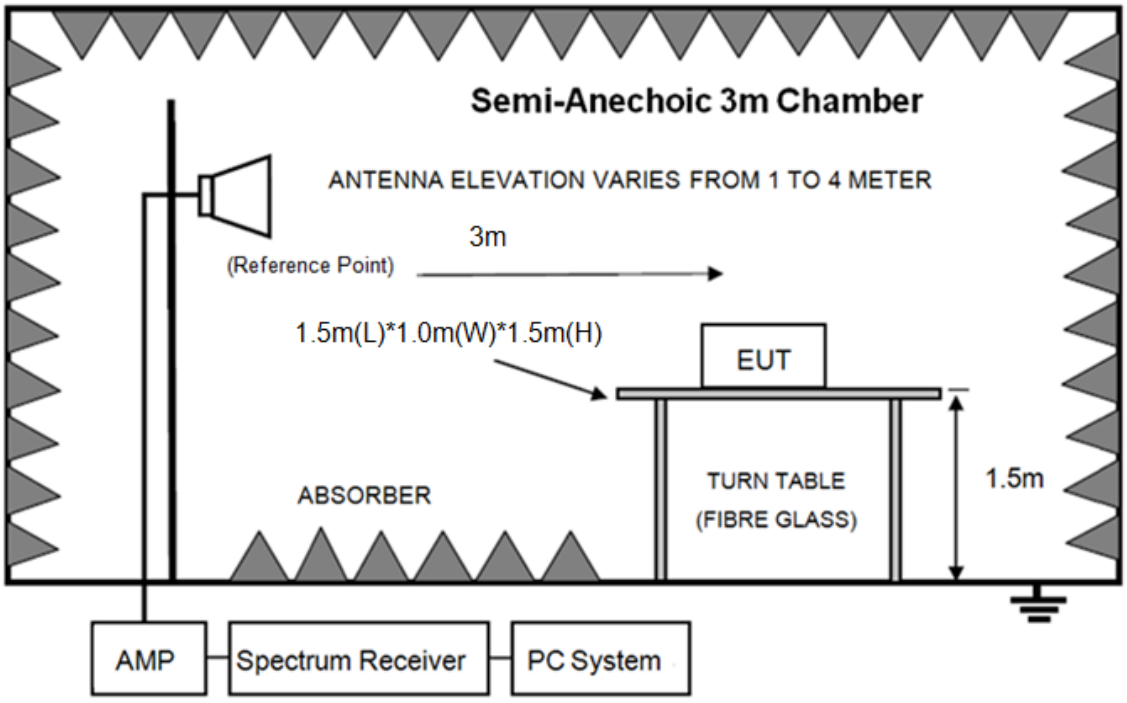
9. Transmitter unwanted emissions in the spurious domain

9.1. Block diagram of test setup

Below 1G:



Above 1G:



9.2. Limits

Frequency Range	Maximum power e.r.p (≤1GHz) e.i.r.p (>1GHz)	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87.5 MHz	-36 dBm	100 kHz
87.5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 12.75 GHz	-30 dBm	1 MHz

9.3. Test Procedure

(1) Scan from 30MHz to 12.75GHz, find the maximum radiation frequency to measure.

(2) The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT.

(3) Refer to EN 300 328 V2.1.1 Clause 5.4.9.2 and Annex B

9.4. Test Result

Test Mode: Tx mode 2402 MHz				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1 GHz)				
38.21	-81.76	-36.00	H	PASS
89.59	-80.08	-54.00	H	PASS
126.77	-77.71	-36.00	H	PASS
352.94	-77.06	-36.00	H	PASS
508.26	-76.66	-54.00	H	PASS
724.26	-72.15	-54.00	H	PASS
39.02	-63.04	-36.00	V	PASS
68.39	-76.94	-54.00	V	PASS
90.54	-78.23	-54.00	V	PASS
142.82	-76.46	-36.00	V	PASS
345.60	-77.74	-36.00	V	PASS
701.76	-72.23	-54.00	V	PASS
(above 1 GHz)				
4090.25	-47.35	-30.00	H	PASS
5735.25	-45.31	-30.00	H	PASS
7345.00	-43.34	-30.00	H	PASS
8849.00	-38.59	-30.00	H	PASS
9601.00	-37.73	-30.00	H	PASS
10787.75	-36.57	-30.00	H	PASS
4795.25	-44.11	-30.00	V	PASS
6264.00	-44.14	-30.00	V	PASS
7779.75	-42.25	-30.00	V	PASS
8849.00	-38.03	-30.00	V	PASS
10317.75	-37.29	-30.00	V	PASS
10928.75	-36.41	-30.00	V	PASS

Test Mode: Tx mode 2441 MHz				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1 GHz)				
37.81	-82.09	-36.00	H	PASS
89.59	-80.82	-54.00	H	PASS
125.01	-77.79	-36.00	H	PASS
348.03	-77.43	-36.00	H	PASS
699.31	-71.32	-54.00	H	PASS
938.83	-71.27	-36.00	H	PASS
39.02	-63.19	-36.00	V	PASS
68.39	-77.65	-54.00	V	PASS
90.54	-76.74	-54.00	V	PASS
141.83	-77.00	-36.00	V	PASS
350.48	-77.38	-36.00	V	PASS
699.31	-72.10	-54.00	V	PASS
(above 1 GHz)				
4078.50	-47.80	-30.00	H	PASS
5147.75	-45.65	-30.00	H	PASS
6792.75	-43.87	-30.00	H	PASS
7909.00	-40.75	-30.00	H	PASS
9601.00	-37.45	-30.00	H	PASS
10975.75	-36.54	-30.00	H	PASS
4877.50	-44.49	-30.00	V	PASS
6369.75	-44.79	-30.00	V	PASS
7909.00	-42.07	-30.00	V	PASS
8719.75	-39.00	-30.00	V	PASS
9636.25	-38.64	-30.00	V	PASS
11081.50	-36.60	-30.00	V	PASS

Test Mode: Tx mode 2480 MHz				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1 GHz)				
39.02	-82.71	-36.00	H	PASS
67.44	-84.49	-54.00	H	PASS
125.45	-77.92	-36.00	H	PASS
340.78	-78.01	-36.00	H	PASS
744.87	-72.06	-54.00	H	PASS
945.44	-70.95	-36.00	H	PASS
39.16	-64.12	-36.00	V	PASS
67.68	-77.84	-54.00	V	PASS
90.54	-77.87	-54.00	V	PASS
141.83	-76.30	-36.00	V	PASS
354.18	-76.90	-36.00	V	PASS
709.18	-71.95	-54.00	V	PASS
(above 1 GHz)				
4959.75	-45.88	-30.00	H	PASS
6369.75	-43.60	-30.00	H	PASS
7380.25	-42.48	-30.00	H	PASS
8719.75	-37.86	-30.00	H	PASS
9518.75	-36.83	-30.00	H	PASS
11011.00	-37.20	-30.00	H	PASS
4959.75	-43.77	-30.00	V	PASS
6228.75	-43.36	-30.00	V	PASS
7897.25	-42.42	-30.00	V	PASS
9577.50	-38.10	-30.00	V	PASS
10693.75	-37.54	-30.00	V	PASS
11199.00	-36.42	-30.00	V	PASS

Note: All the emissions are measured with PK detector. Scan with GFSK, π/4-DQPSK, the worst case is GFSK Mode was recorded in this report.

10. Receiver Spurious emissions

10.1. Block diagram of test setup

Same with 9.1

10.2. Limits

The spurious emissions of the receiver shall not exceed the values given in below table.

Frequency range	Maximum power	Bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

10.3. Test Procedure

Refer to clause 9.3

10.4. Test result

Test Mode: Rx mode 2402 MHz				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1 GHz)				
37.81	-82.24	-57.00	H	PASS
90.54	-82.15	-57.00	H	PASS
127.67	-77.72	-57.00	H	PASS
340.78	-77.09	-57.00	H	PASS
495.93	-76.77	-57.00	H	PASS
726.81	-72.02	-57.00	H	PASS
39.02	-63.90	-57.00	V	PASS
68.39	-76.94	-57.00	V	PASS
89.59	-78.82	-57.00	V	PASS
141.33	-77.07	-57.00	V	PASS
349.25	-76.83	-57.00	V	PASS
696.86	-71.94	-57.00	V	PASS
(above 1 GHz)				
4877.50	-57.17	-47.00	H	PASS
5817.50	-55.38	-47.00	H	PASS
6487.25	-54.65	-47.00	H	PASS
7368.50	-54.25	-47.00	H	PASS
8449.50	-54.63	-47.00	H	PASS
9166.25	-54.23	-47.00	H	PASS
3467.50	-60.37	-47.00	V	PASS
4842.25	-57.53	-47.00	V	PASS
5782.25	-56.61	-47.00	V	PASS
6228.75	-53.84	-47.00	V	PASS
7368.50	-54.15	-47.00	V	PASS
8555.25	-53.73	-47.00	V	PASS

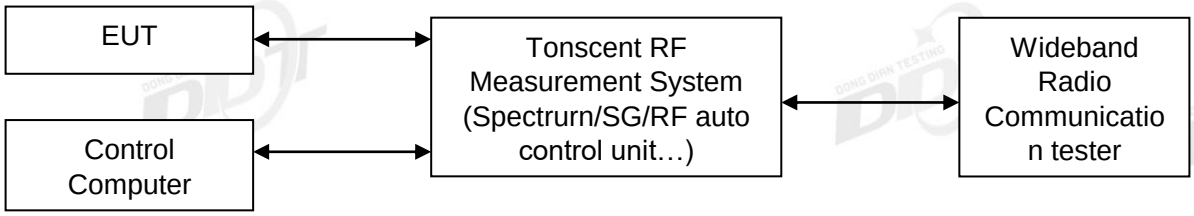
Test Mode: Rx mode 2441 MHz				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1 GHz)				
48.67	-83.71	-57.00	H	PASS
90.54	-81.39	-57.00	H	PASS
125.01	-77.51	-57.00	H	PASS
383.93	-77.04	-57.00	H	PASS
682.35	-72.52	-57.00	H	PASS
945.44	-71.28	-57.00	H	PASS
39.02	-64.72	-57.00	V	PASS
68.39	-78.07	-57.00	V	PASS
142.32	-77.38	-57.00	V	PASS
343.18	-77.76	-57.00	V	PASS
701.76	-72.16	-57.00	V	PASS
935.55	-71.57	-57.00	V	PASS
(above 1 GHz)				
3291.25	-60.09	-47.00	H	PASS
4431.00	-58.22	-47.00	H	PASS
5441.50	-57.36	-47.00	H	PASS
6228.75	-54.29	-47.00	H	PASS
6969.00	-54.09	-47.00	H	PASS
7721.00	-53.42	-47.00	H	PASS
3408.75	-60.65	-47.00	V	PASS
4501.50	-58.00	-47.00	V	PASS
5288.75	-58.12	-47.00	V	PASS
6264.00	-54.51	-47.00	V	PASS
7321.50	-55.53	-47.00	V	PASS
7779.75	-53.89	-47.00	V	PASS

Test Mode: Rx mode 2480 MHz				
Frequency (MHz)	Result (dBm)	Limit (dBm)	Antenna polarization	Conclusion
(below 1 GHz)				
38.21	-81.92	-57.00	H	PASS
56.00	-83.44	-57.00	H	PASS
90.54	-81.04	-57.00	H	PASS
125.01	-78.85	-57.00	H	PASS
352.94	-77.06	-57.00	H	PASS
724.26	-72.15	-57.00	H	PASS
38.21	-65.80	-57.00	V	PASS
68.39	-79.13	-57.00	V	PASS
143.33	-76.50	-57.00	V	PASS
351.71	-77.36	-57.00	V	PASS
524.55	-76.68	-57.00	V	PASS
687.15	-71.96	-57.00	V	PASS
(above 1 GHz)				
3397.00	-60.83	-47.00	H	PASS
4149.00	-59.16	-47.00	H	PASS
5664.75	-58.11	-47.00	H	PASS
6428.50	-54.89	-47.00	H	PASS
7192.25	-54.41	-47.00	H	PASS
7838.50	-54.55	-47.00	H	PASS
4501.50	-56.11	-47.00	V	PASS
5136.00	-58.48	-47.00	V	PASS
6052.50	-55.67	-47.00	V	PASS
7180.50	-55.19	-47.00	V	PASS
7909.00	-53.89	-47.00	V	PASS
8614.00	-54.17	-47.00	V	PASS

Note: All the emissions are measured with PK detector.

11. Receiver Blocking

11.1. Block diagram of test setup



11.2. Limits

Table 7: Receiver Blocking parameters receiver category 2 equipment

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)	Type of blocking signal
P_{min} + 6 dB	2 380 2 503,5	-57	CW
P_{min} + 6 dB	2 300 2 583,5	-47	CW
NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.			

Performance Criteria:

The minimum performance criterion shall be a PER less than or equal to 10 %.

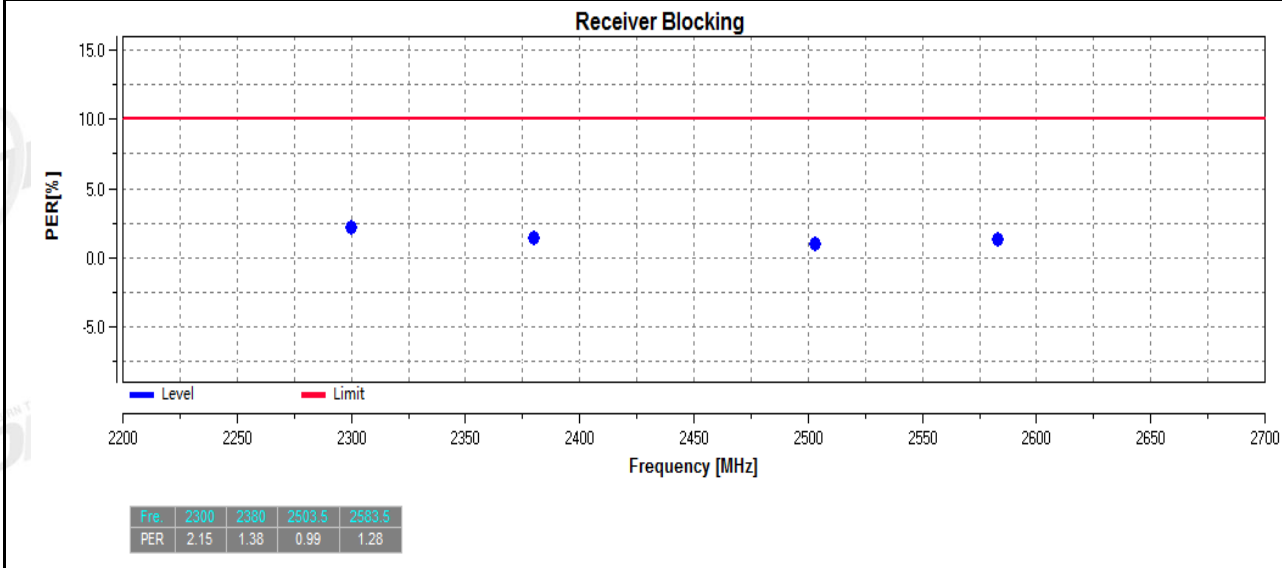
11.3. Test Procedure

Refer to EN 300 328 V2.1.1 clause 5.4.11.2.1

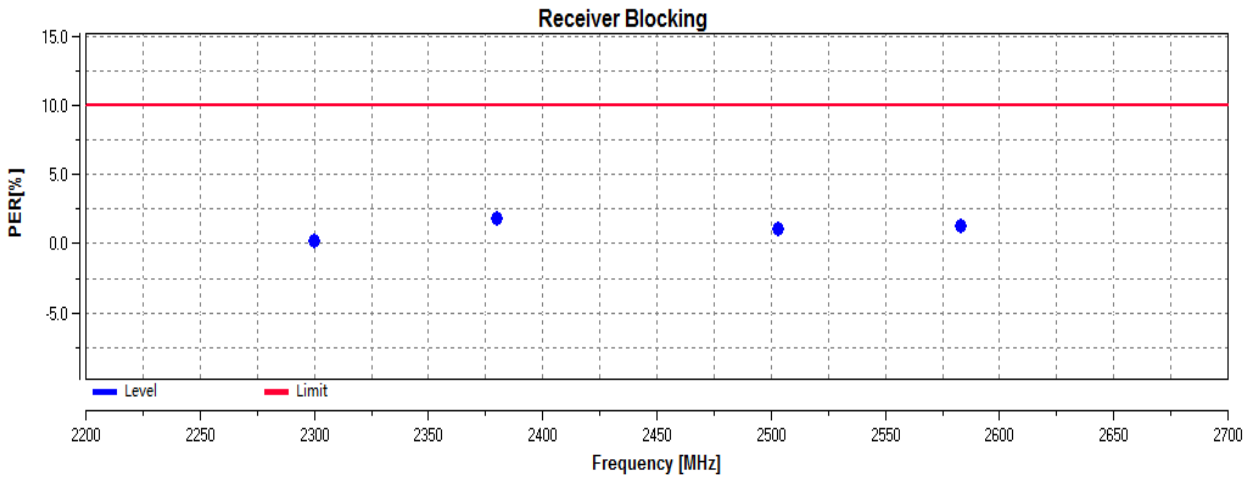
11.4. Test Result

Test Condition	Test Mode	Test Channel	Ant	Pmin[dBm]	Wanted signal Level[dBm]	Freq [MHz]	CW Level [dBm]	PER [%]	Limit [%]	Verdict
TNVN	DH1	2402	Ant1	-87.74	-81.74	2380	-57	1.38	<=10	PASS
TNVN	DH1	2402	Ant1	-87.74	-81.74	2503.5	-57	0.99	<=10	PASS
TNVN	DH1	2402	Ant1	-87.74	-81.74	2583.5	-47	1.28	<=10	PASS
TNVN	DH1	2402	Ant1	-87.74	-81.74	2300	-47	2.15	<=10	PASS
TNVN	DH1	2480	Ant1	-87.85	-81.85	2583.5	-47	1.28	<=10	PASS
TNVN	DH1	2480	Ant1	-87.85	-81.85	2300	-47	0.20	<=10	PASS
TNVN	DH1	2480	Ant1	-87.85	-81.85	2380	-57	1.77	<=10	PASS
TNVN	DH1	2480	Ant1	-87.85	-81.85	2503.5	-57	0.99	<=10	PASS
TNVN	2DH1	2402	Ant1	-85.74	-79.74	2380	-57	3.29	<=10	PASS
TNVN	2DH1	2402	Ant1	-85.74	-79.74	2503.5	-57	4.12	<=10	PASS
TNVN	2DH1	2402	Ant1	-85.74	-79.74	2583.5	-47	3.19	<=10	PASS
TNVN	2DH1	2402	Ant1	-85.74	-79.74	2300	-47	4.31	<=10	PASS
TNVN	2DH1	2480	Ant1	-85.85	-79.85	2583.5	-47	3.57	<=10	PASS
TNVN	2DH1	2480	Ant1	-85.85	-79.85	2300	-47	2.82	<=10	PASS
TNVN	2DH1	2480	Ant1	-85.85	-79.85	2380	-57	3.38	<=10	PASS
TNVN	2DH1	2480	Ant1	-85.85	-79.85	2503.5	-57	5.84	<=10	PASS

Receiver Blocking_TNVN_DH1_2402_Ant1

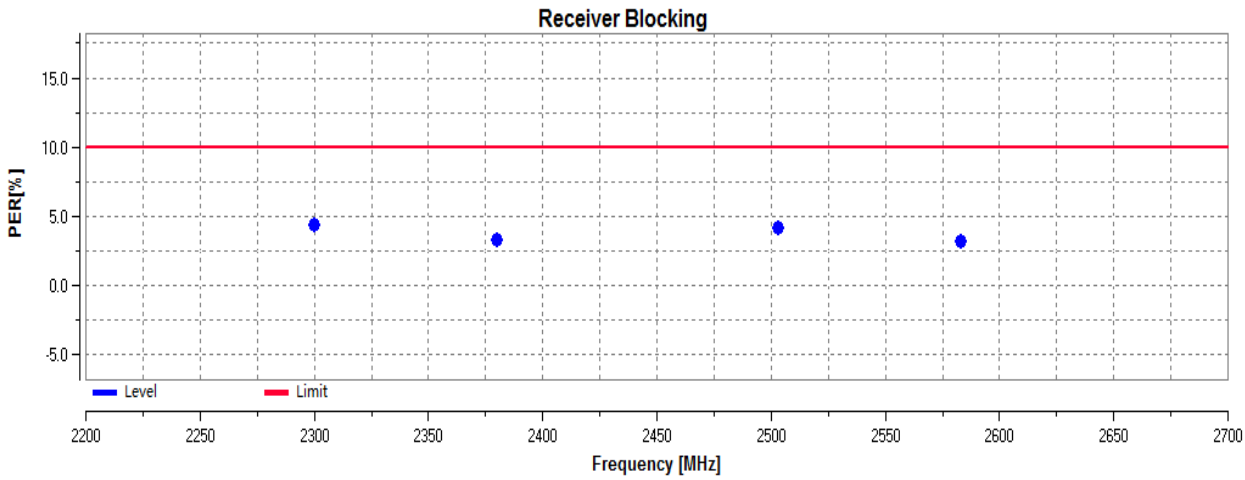


Receiver Blocking_TNVN_DH1_2480_Ant1



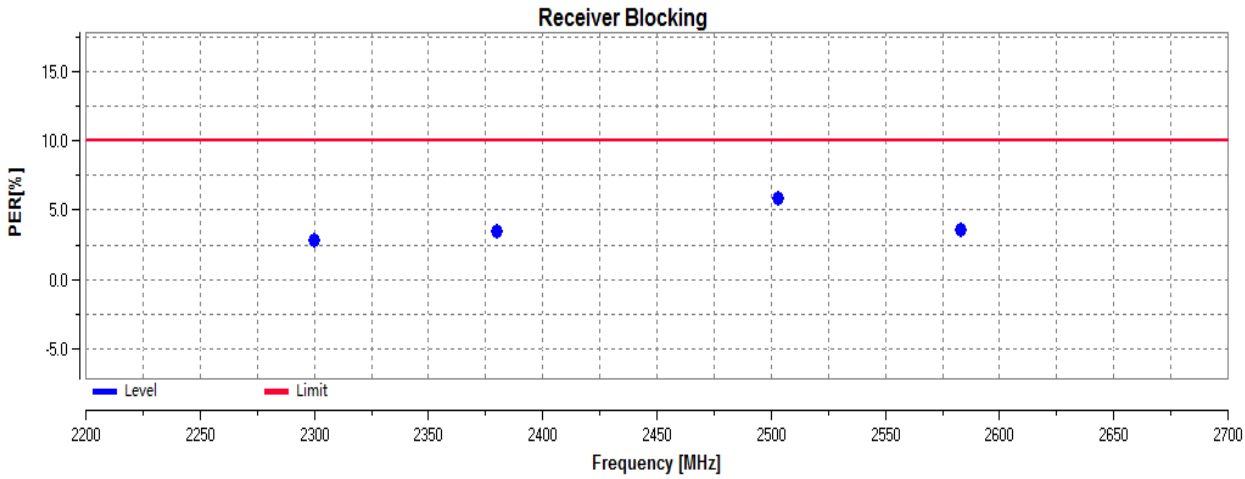
Fre.	2300	2380	2503.5	2583.5
PER	0.20	1.77	0.99	1.28

Receiver Blocking_TNVN_2DH1_2402_Ant1



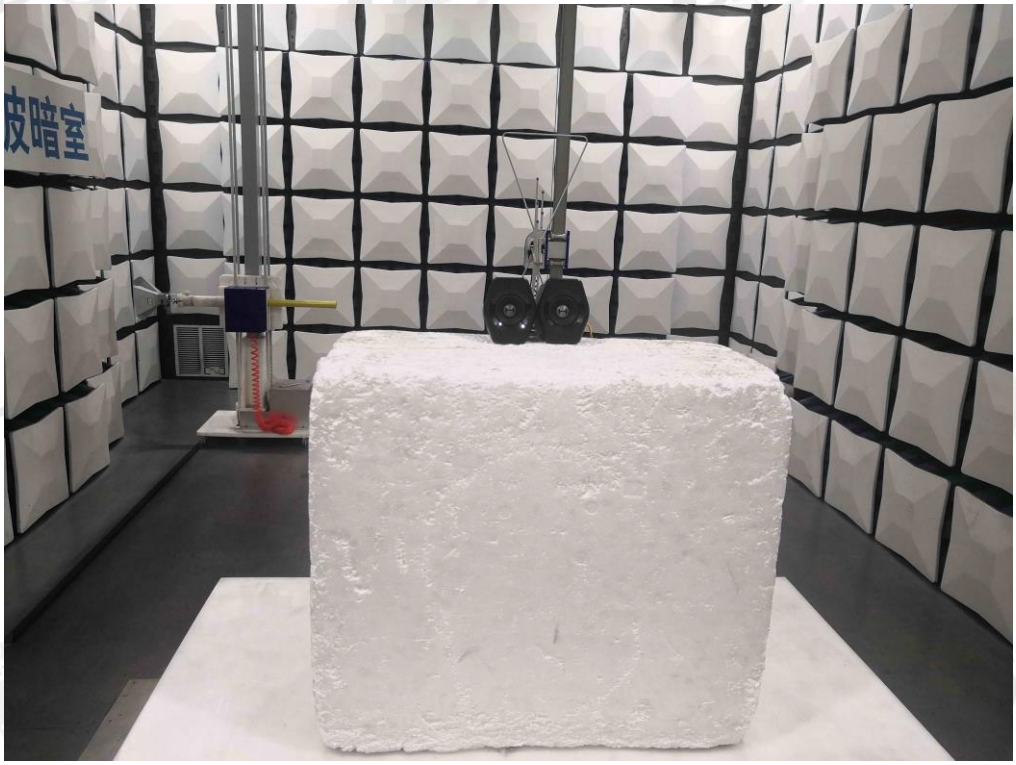
Fre.	2300	2380	2503.5	2583.5
PER	4.31	3.29	4.12	3.19

Receiver Blocking_TNVN_2DH1_2480_Ant1



Fre.	2300	2380	2503.5	2583.5
PER	2.82	3.38	5.84	3.57

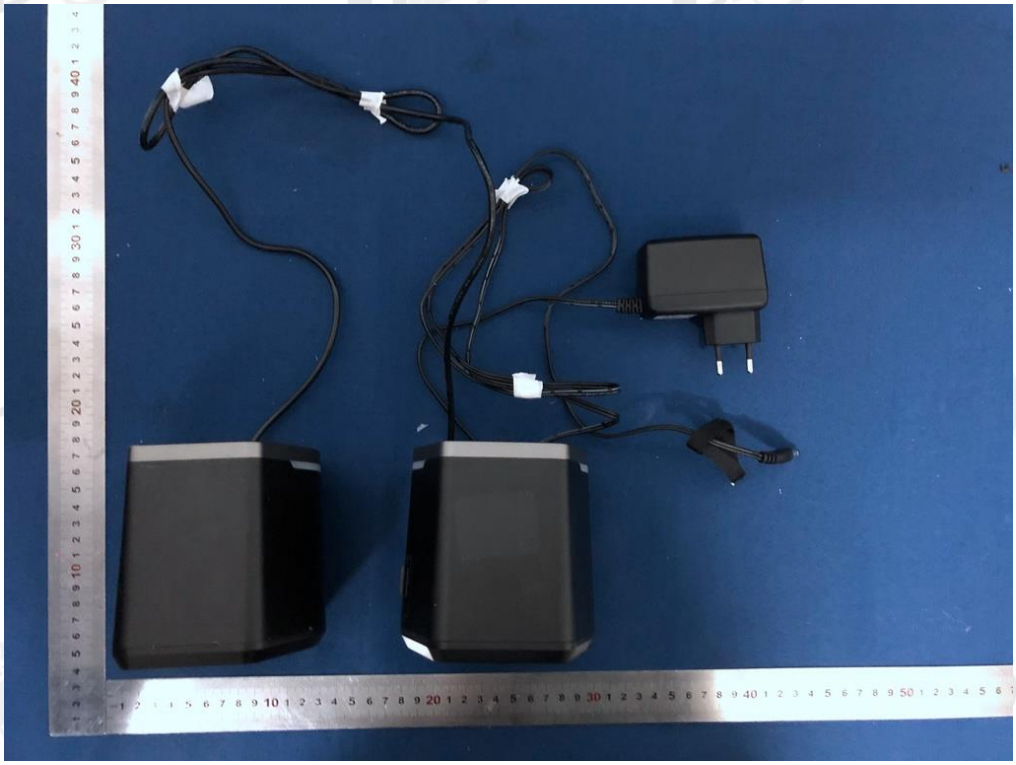
12. Test setup photograph






ZHIXIANG

13. Photos of the EUT

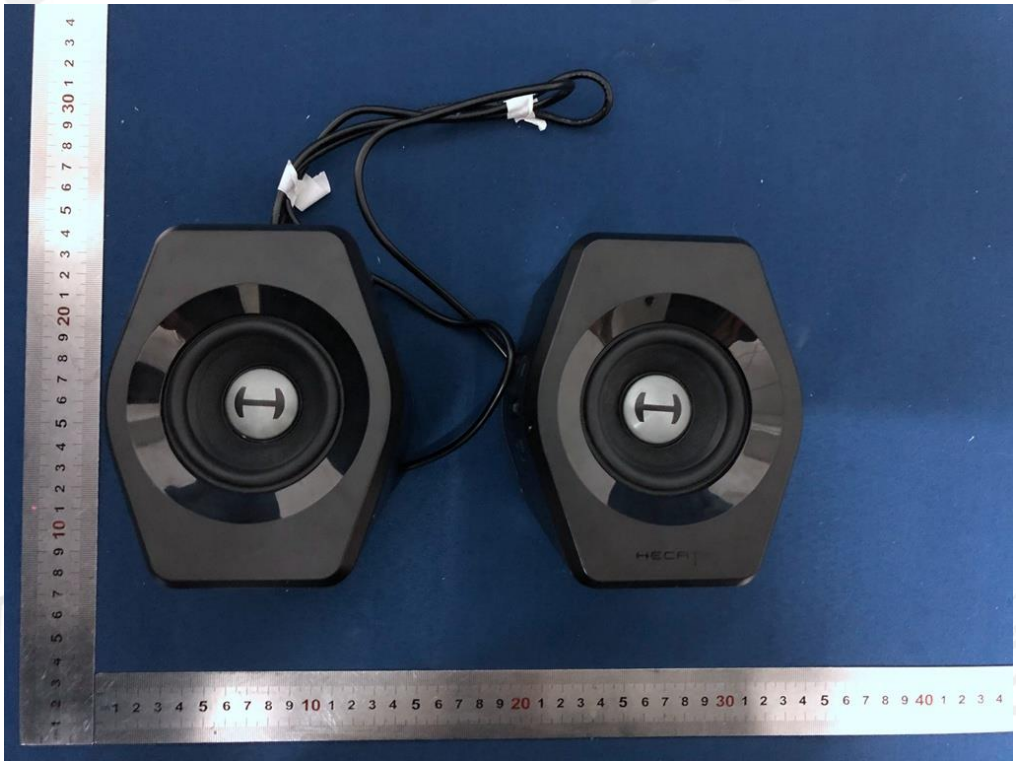







EDIFIER
Switching Adapter
MODEL NO.:ADT-20120 EU
INPUT : 100-240V~ 50/60Hz 0.7A
OUTPUT :12V ⎓1. 65A
Made in China





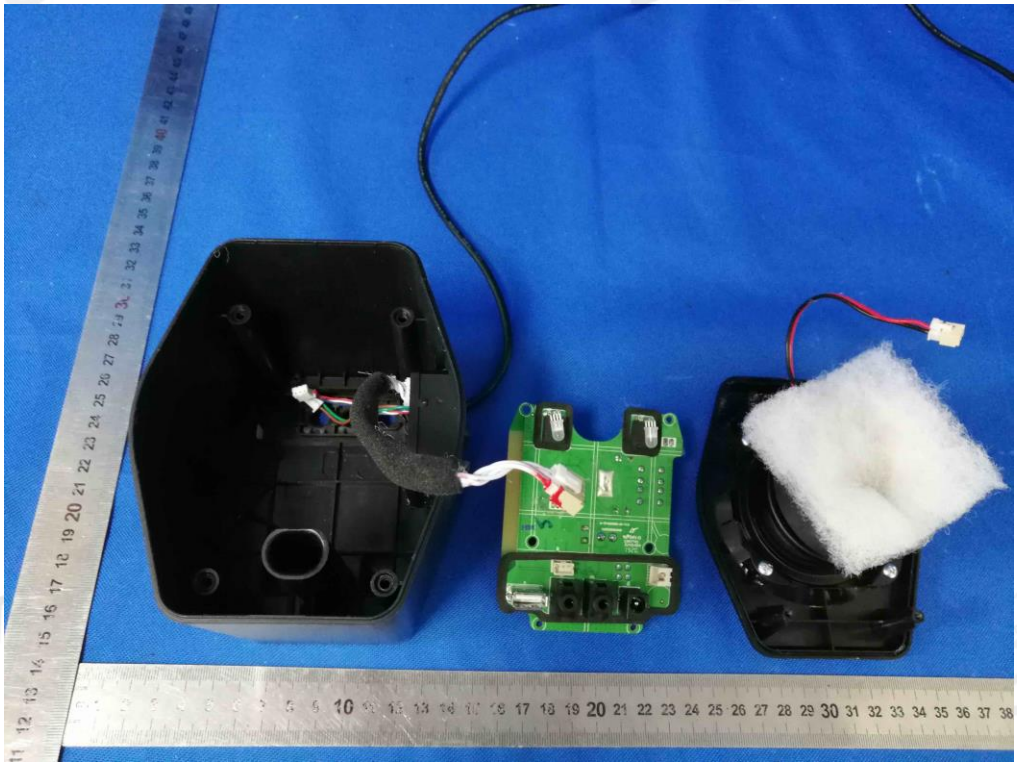

EDIFIER

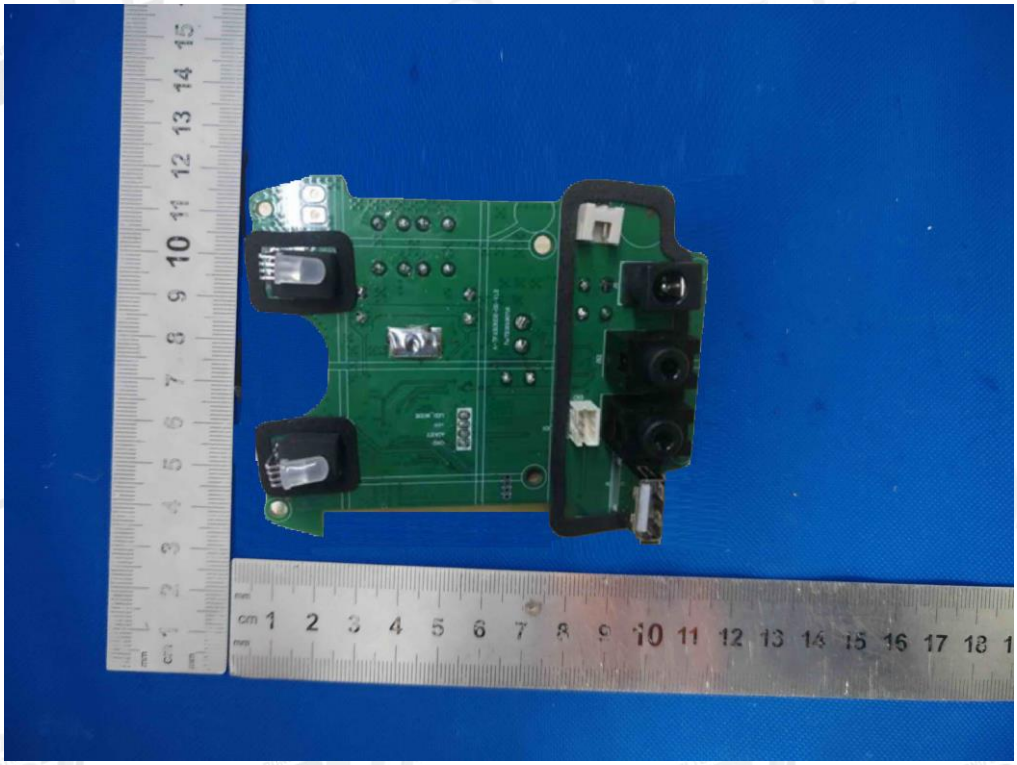

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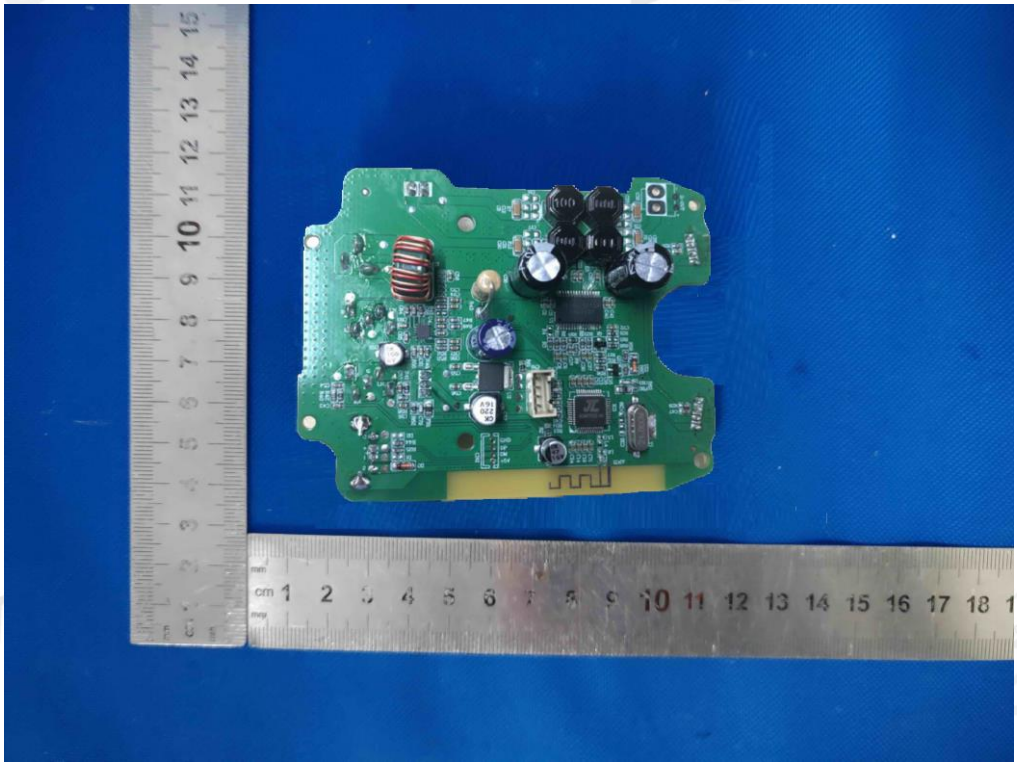


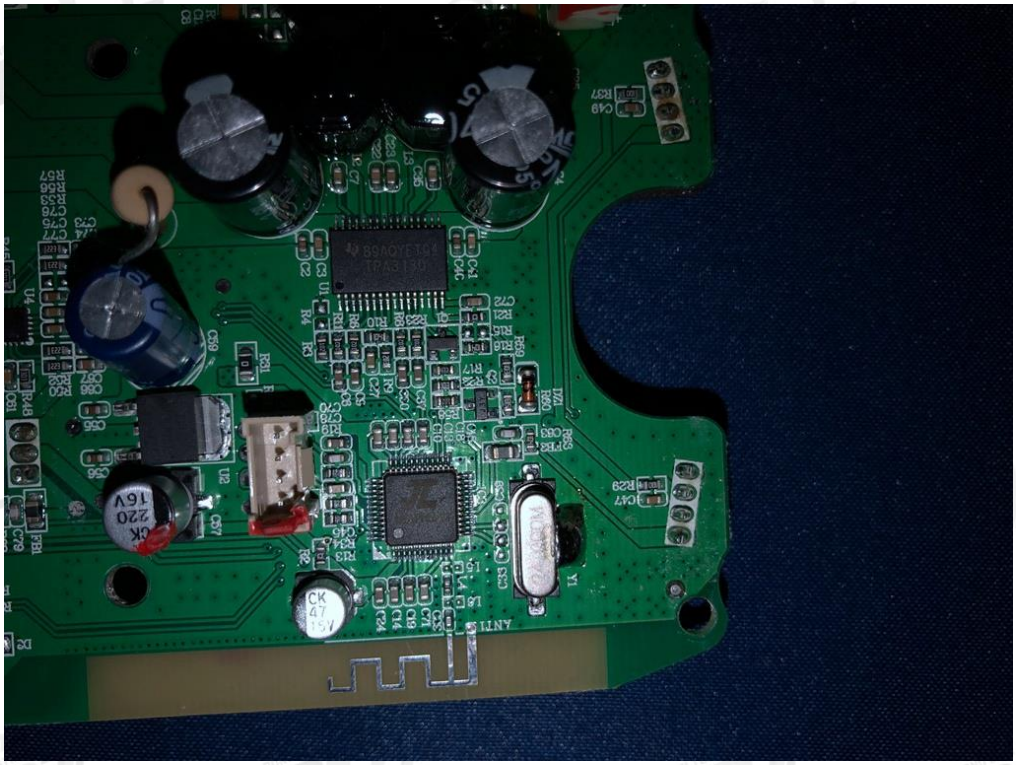

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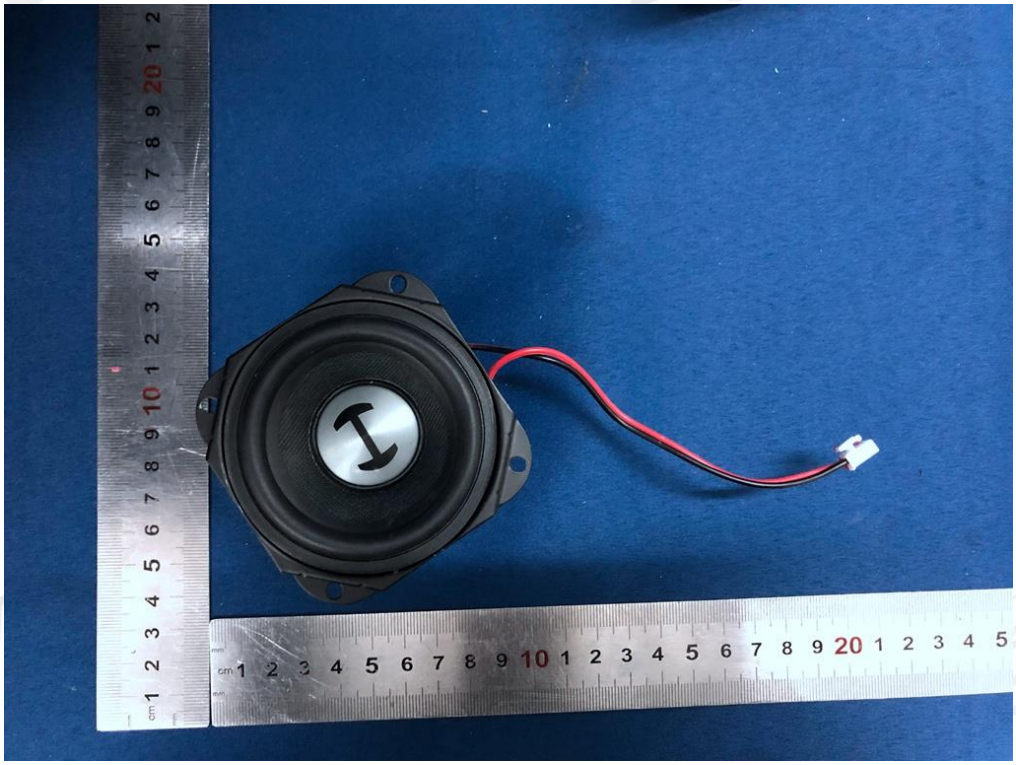

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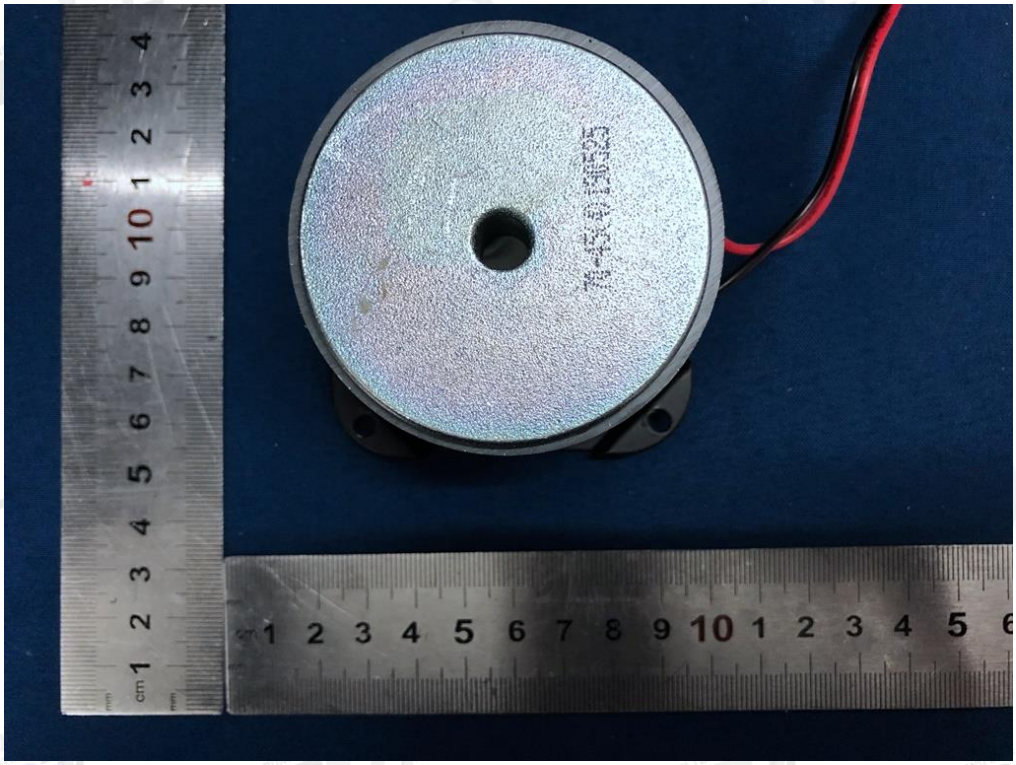


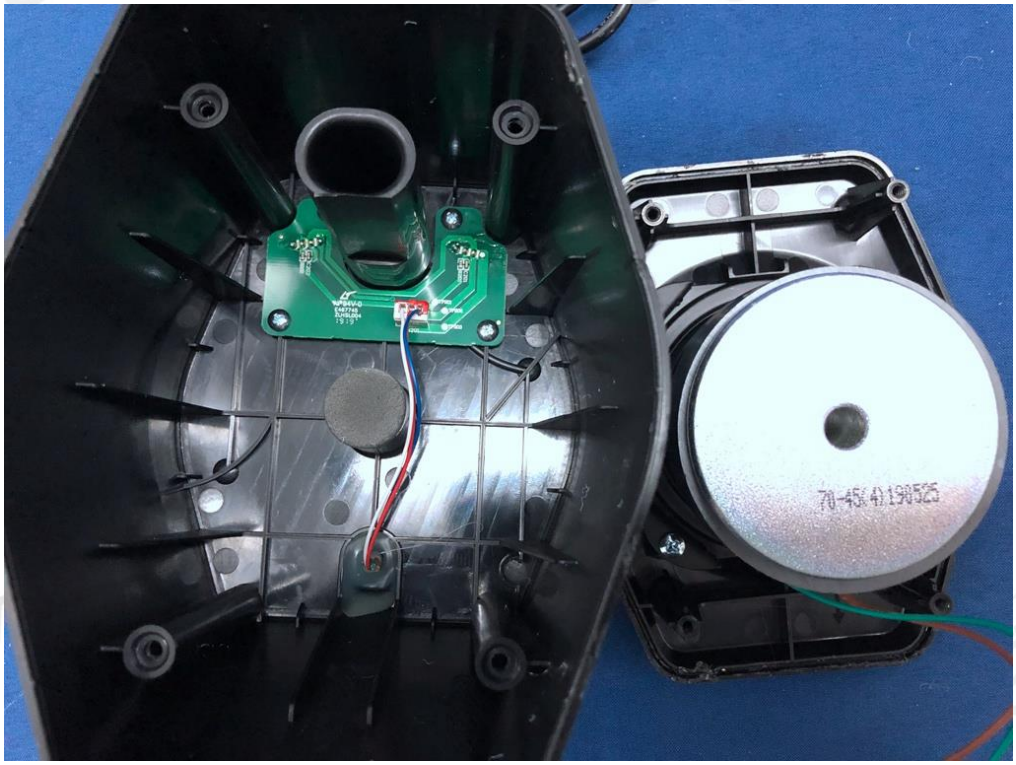


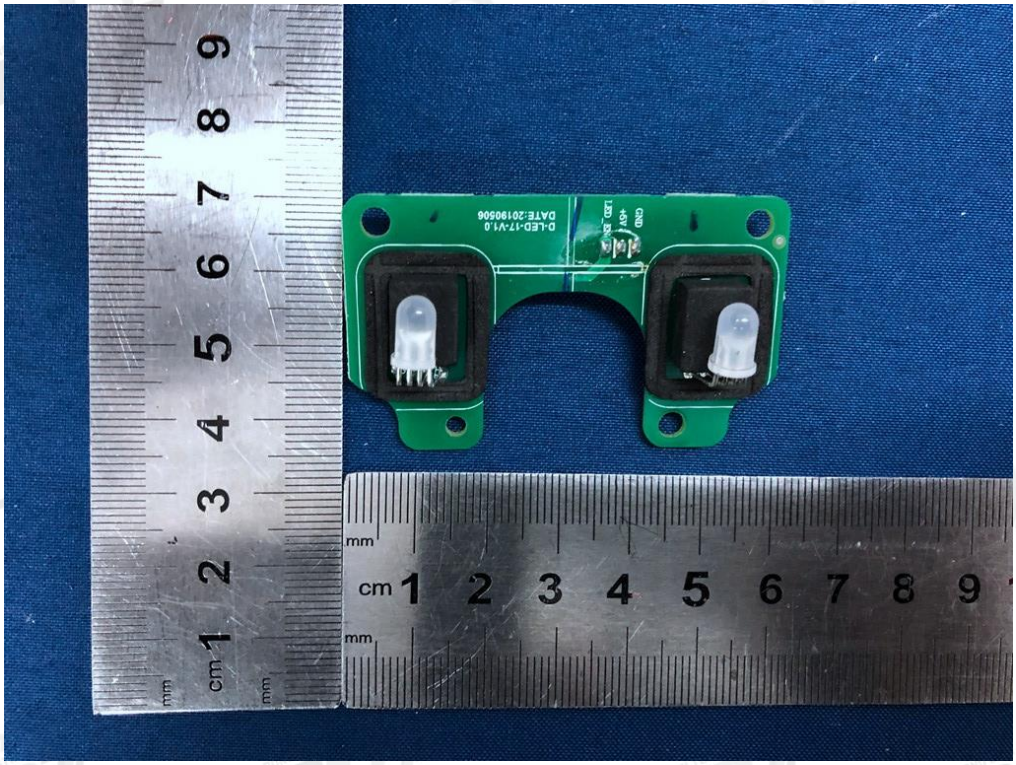


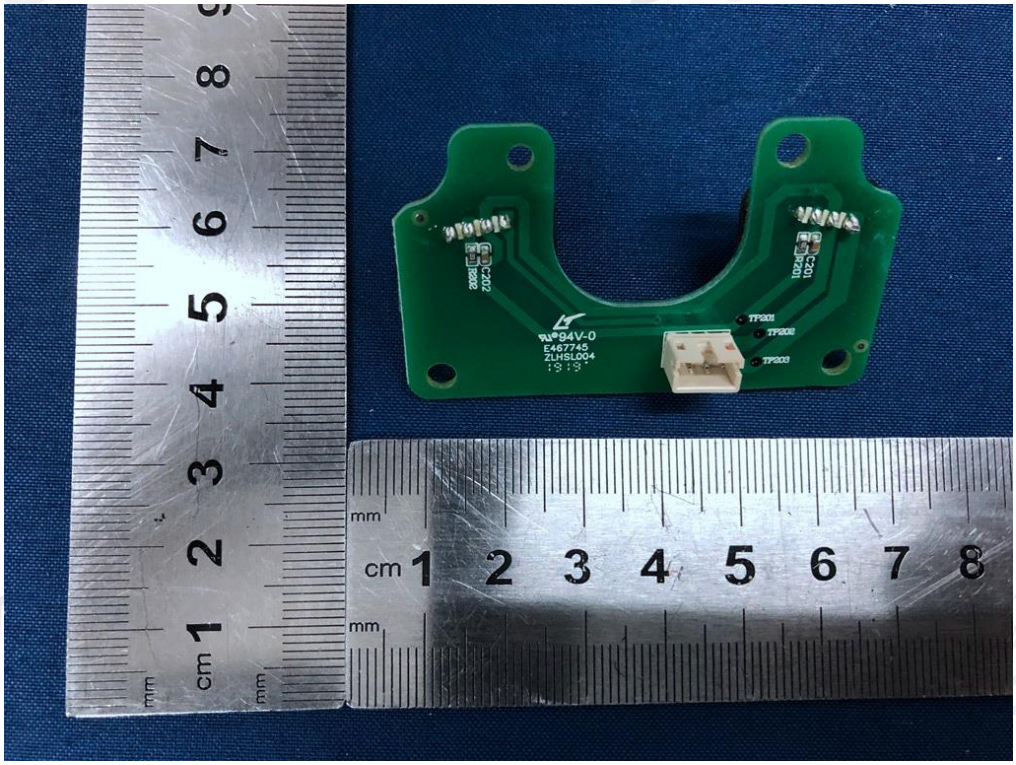












END OF REPORT