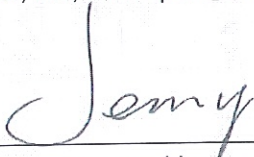


RF TEST REPORT

Applicant..... : SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address..... : Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City,
Guangdong, China
Manufacturer..... : SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address..... : Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City,
Guangdong, China
Factory..... : SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address..... : Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City,
Guangdong, China
EUT : 2.1 computer multimedia speaker
Brand Name..... : F&D
Model No. : HT-350, HT-360, HT-380, HT-390(For model difference refer to section 2)
Measurement Standard..... : ETSI EN 300 328 V2.2.2: 2019
Receipt Date of Samples.... : July 02, 2021
Date of Tested..... : July 02, 2021 to August 20, 2021
Date of Report..... : December 28, 2021

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.


Prepared by
Jenny Liu / Project Engineer


Approved by
Iori Fan / Authorized Signatory

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1. Summary of Test Result

ETSI EN 300 328 V2.2.2	Description of Test	Result	Remarks
4.3.1.2 / 4.3.2.2	RF Output Power	Pass	----
4.3.2.3	Power Spectral Density (Modulations other than FHSS equipment)	N/A	----
4.3.1.3 / 4.3.2.4	Duty cycle, Tx-Sequence, Tx-gap (Non-adaptive equipment)	N/A ^{see note 1}	----
4.3.1.4	Dwell time, Minimum Frequency Occupation & Hopping Sequence (FHSS equipment)	Pass	----
4.3.1.5	Hopping Frequency Separation (FHSS equipment)	Pass	----
4.3.1.6 / 4.3.2.5	Medium Utilisation (Non-adaptive equipment)	N/A ^{see note 2}	----
4.3.1.7 / 4.3.2.6	Adaptivity	N/A ^{see note 2}	----
4.3.1.8 / 4.3.2.7	Occupied Channel Bandwidth	Pass	----
4.3.1.9 / 4.3.2.8	Transmitter unwanted emission in the OOB domain	Pass	----
4.3.1.10 / 4.3.2.9	Transmitter unwanted emissions in the spurious domain	Pass	----
4.3.1.11 / 4.3.2.10	Receiver spurious emissions	Pass	----
4.3.1.12 / 4.3.2.11	Receiver Blocking	Pass	----
4.3.1.13 / 4.3.2.12	Geo-location capability	N/A ^{see note 3}	----

Note:

1. These requirements apply to non-adaptive frequency hopping equipment or to adaptive frequency hopping equipment operating in a non-adaptive mode. This EUT only works in adaptive mode, these tests are not applicable this EUT
2. These requirements do not apply for equipment with a maximum declared RF Output power of less than 10dBm EIRP or for equipment when operating in a mode where the RF Output power is less than 10dBm EIRP.
3. Only for equipment with geo-location capability.

2. General Description of EUT

Product Information	
Product name:	2.1 computer multimedia speaker
Main Model Name:	HT-350
Additional Model Name:	HT-360, HT-380, HT-390
Model Difference:	These models have the same circuit schematic, construction, PCB layout and critical components. Their differences are model number and the size of enclosure.
S/N:	2107-3437 for Soundbar; 2107-3437-1 for Subwoofer
Brand Name:	F&D
Hardware Version:	V1.0
Software Version:	V1.0
Temperature Range:	0 – 40 °C
Rating:	For Soundbar: AC 100-240V 50/60Hz, 0.5A For Subwoofer: AC 100-240V 50/60Hz, 0.5A
Typical Arrangement:	Table-top
I/O Port:	For Soundbar: AC Port*1, USB Port*1, Optical Port*1, AUX Port*1, HDMI ARC*1 For Subwoofer: AC Port*1
Accessories Information	
Adapter:	N/A
Cable:	Power cord 1: 1.63m unshielded; Power cord 2: 1.63m unshielded
Other:	IR Remote * 1

Additional information	
Note:	<ol style="list-style-type: none"> 1. According to the model difference, all tests were performed on model HT-350. 2. The EUT consists of Soundbar and Subwoofer two units. 3. The manufacturer declared that length of Audio line/ Signal line is less than 3m.
Remark:	This report was an additional report based on NTC2107052EV00. Comparing with the original report NTC2107052EV00, this report changed the information of the applicant, manufacturer, product name, and model name, brand name. According to the manufacturer, all the original test data continue to be referenced but the changed information.
Bluetooth Function For Soundbar unit & Subwoofer unit:	
Bluetooth Version:	V5.3
Frequency Range:	2402-2480MHz
Modulation Type:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Number of Channel:	79
Channel Space:	1MHz
Antenna Type:	PCB antenna
Antenna Gain:	0dBi (Declared by manufacturer)
Adaptive/Non-Adaptive Equipment:	Adaptive equipment
Receiver Category:	Category 2
<p>Note: The EUT does not support Bluetooth Low Energy feature. The manufacturer declared that Bluetooth specification change will not change the Bluetooth Chip and it' s related circuit.</p>	

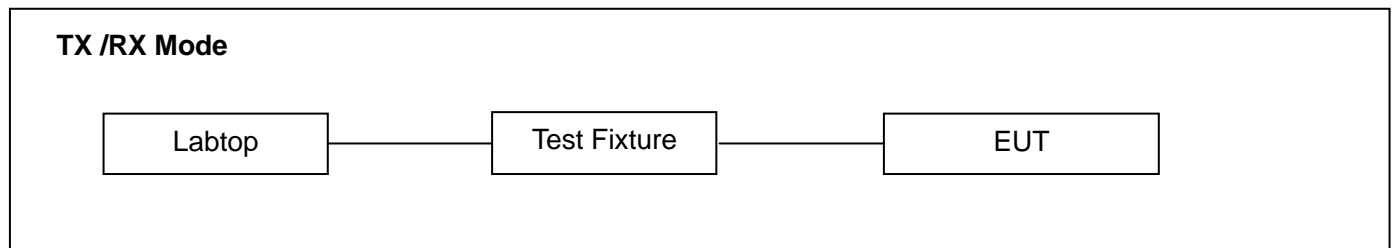
Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	24721
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461	----	----

3. Test Channels and Modes Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, packet type, data rates and antenna ports (if EUT with antenna diversity architecture).

----	Mode	Frequency (MHz)	Modulation Technology	Modulation
1.	TX (Hopping)	2402-2480	FHSS	GFSK / 8DPSK
2.	TX	2402	FHSS	GFSK / 8DPSK
3.	TX	2480	FHSS	GFSK / 8DPSK
4.	RX	2402	FHSS	GFSK / 8DPSK
5.	RX	2480	FHSS	GFSK / 8DPSK

4. Configuration of EUT



5. Modification of EUT

No modifications are made to the EUT during all test items.

6. Description of Support Device

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

No.	Equipment	Brand	M/N	S/N	Cable Specification	Remarks
1.	Laptop	Lenovo	02213DC	0A33012	Power cord, 1.8m, unshielded	Provided by the laboratory
2.	Power supply (Laptop)	Taida	92P1154	N/A		Provided by the laboratory
3.	Test fixture	---	---	---	----	Provided by the manufacturer

Test software	Power Setting
BT FCC TOOL V2.24	Auto

7. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	<p>The Laboratory has been assessed and proved to be in compliance with CNAS/CL01</p> <p>Listed by CNAS, August 13, 2018</p> <p>The Certificate Registration Number is L5795.</p> <p>The Certificate is valid until August 13, 2024</p> <p>The Laboratory has been assessed and proved to be in compliance with ISO17025</p> <p>Listed by A2LA, November 01, 2017</p> <p>The Certificate Registration Number is 4429.01</p> <p>The Certificate is valid until December 31, 2021</p> <p>Listed by FCC, November 06, 2017</p> <p>Test Firm Registration Number: 907417</p> <p>Listed by Industry Canada, June 08, 2017</p> <p>The Certificate Registration Number. Is 46405-9743A</p>
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

8. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards: ETSI EN 300 328 V2.2.2

9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

10. Test Conditions

No.	Test Item	Test Mode	Test Voltage	Tested by	Remarks
1.	RF Output Power	1	AC 230V 50Hz	Sean	See note
2.	Hopping Sequence	1	AC 230V 50Hz	Sean	See note
3.	Dwell Time	1	AC 230V 50Hz	Sean	See note
4.	Minimum Frequency Occupation	1	AC 230V 50Hz	Sean	See note
5.	Occupied Channel Bandwidth	2, 3	AC 230V 50Hz	Sean	See note
6.	Transmitter unwanted emission in the OOB domain	1	AC 230V 50Hz	Sean	See note
7.	Transmitter unwanted emissions in the spurious domain	2, 3	AC 230V 50Hz	Sean	See note
8.	Receiver spurious emissions	4, 5	AC 230V 50Hz	Sean	See note
9.	Receiver Blocking	4, 5	AC 230V 50Hz	Sean	See note

Note: The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35°C, 30~70%, 86~106kPa.

11. Measurement Uncertainty

No.	Test Item	Uncertainty	Remarks
1.	RF Output Power, conducted	$\pm 1.06\text{dB}$	---
2.	Occupied Channel Bandwidth	$\pm 1.42 \times 10^{-4}\%$ MHz	---
3.	Transmitter unwanted emissions in the spurious domain, radiated	Below 1GHz: ± 4.68 dB Above 1GHz: ± 5.14 dB	---
4.	Receiver spurious emissions, radiated		---
5.	Temperature	$\pm 0.8^\circ\text{C}$	---
6.	Humidity	$\pm 3.2\%$	---
7.	DC and low frequency voltages	$\pm 0.1\%$	---
8.	Time	$\pm 5\%$	---
9.	Duty cycle	$\pm 5\%$	---

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

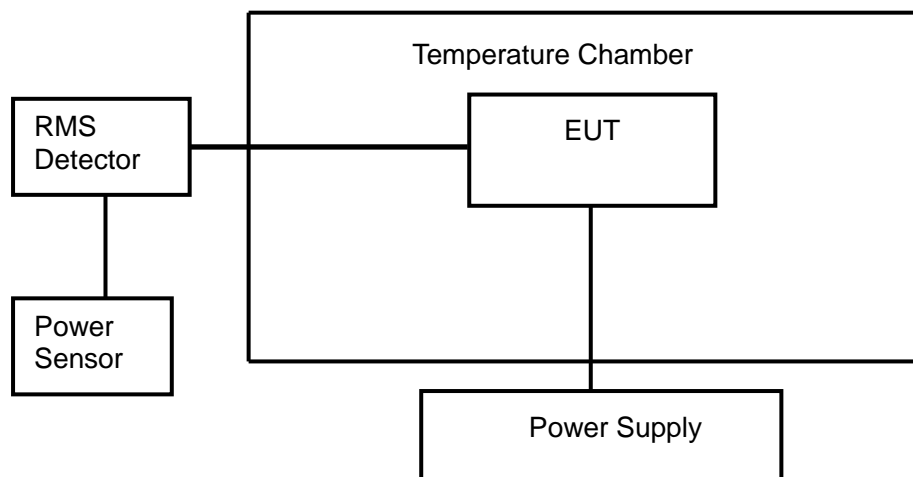
12. Test Items and Results

12.1 RF Output Power

LIMITS

Frequency Band	Limit
2400 ~ 2483.5 MHz	Equivalent isotropic radiated power (e.i.r.p.) ≤ 20 dBm

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.2.2.1.2 for conducted measurement method.
2. The measurements shall be performed at both normal environmental conditions and at the extremes of the operating temperature range.

TEST RESULTS

PASS

Please refer to the following table.

For Soundbar unit

Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021		
Antenna Gain: 0 dBi		Cable Loss: 1.5 dB				
Mode	Data Rate (Mbps)	Temperature (°C)	Reading Level (dBm)	EIRP (dBm)	Limit (dBm)	Result
GFSK (Hopping)	1	25	0.64	2.14	20	PASS
	1	0	0.64	2.14	20	PASS
	1	40	0.78	2.28	20	PASS
8DPSK (Hopping)	3	25	0.11	1.61	20	PASS
	3	0	-0.36	1.14	20	PASS
	3	40	-0.30	1.20	20	PASS

Sample of data calculate:
 $EIRP(dBm) = \text{Reading Output Power}(dBm) + \text{Cable Loss}(dB) + \text{Antenna Gain}(dBi)$

For Subwoofer unit

Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021		
Antenna Gain: 0 dBi		Cable Loss: 1.5 dB				
Mode	Data Rate (Mbps)	Temperature (°C)	Reading Level (dBm)	EIRP (dBm)	Limit (dBm)	Result
GFSK (Hopping)	1	25	0.49	1.99	20	PASS
	1	0	0.37	1.87	20	PASS
	1	40	0.26	1.76	20	PASS
8DPSK (Hopping)	3	25	-0.13	1.37	20	PASS
	3	0	-0.42	1.08	20	PASS
	3	40	-0.26	1.24	20	PASS

Sample of data calculate:
 $EIRP(dBm) = \text{Reading Output Power}(dBm) + \text{Cable Loss}(dB) + \text{Antenna Gain}(dBi)$

12.2 Dwell Time, Minimum Frequency Occupation and Hopping Sequence

LIMITS

Dwell Time	
Test Condition	Limit
Non-adaptive frequency hopping systems	≤ 15 ms
Adaptive frequency hopping systems	≤ 400 ms

Minimum Frequency Occupation Time	
Test Condition	Limit
Non-adaptive frequency hopping systems	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.
Adaptive frequency hopping systems	

Hopping sequence(s)	
Test Condition	Limit
Non-adaptive frequency hopping systems	≥ 15 hopping frequencies or 15/minimum Hopping Frequency Separation in MHz, whichever is the greater.
Adaptive frequency hopping systems	Operating frequency band ≥ 58.45 MHz (Operating over a minimum of 70 % of the operating in the band 2,4 GHz to 2,4835 GHz)
	≥ 15 hopping frequencies or 15/minimum Hopping Frequency Separation in MHz, whichever is the greater.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V_{2.2.2}) clause 5.4.4.2.1 for conducted measurement method.
2. The measurements shall be performed at normal environmental condition.

TEST RESULTS

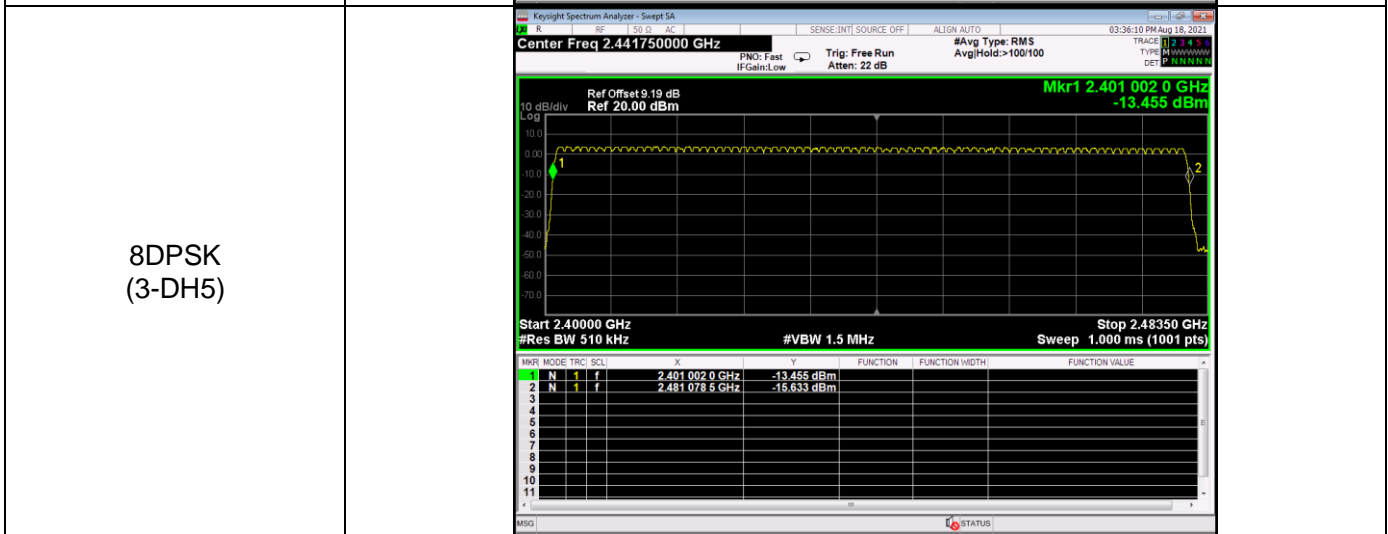
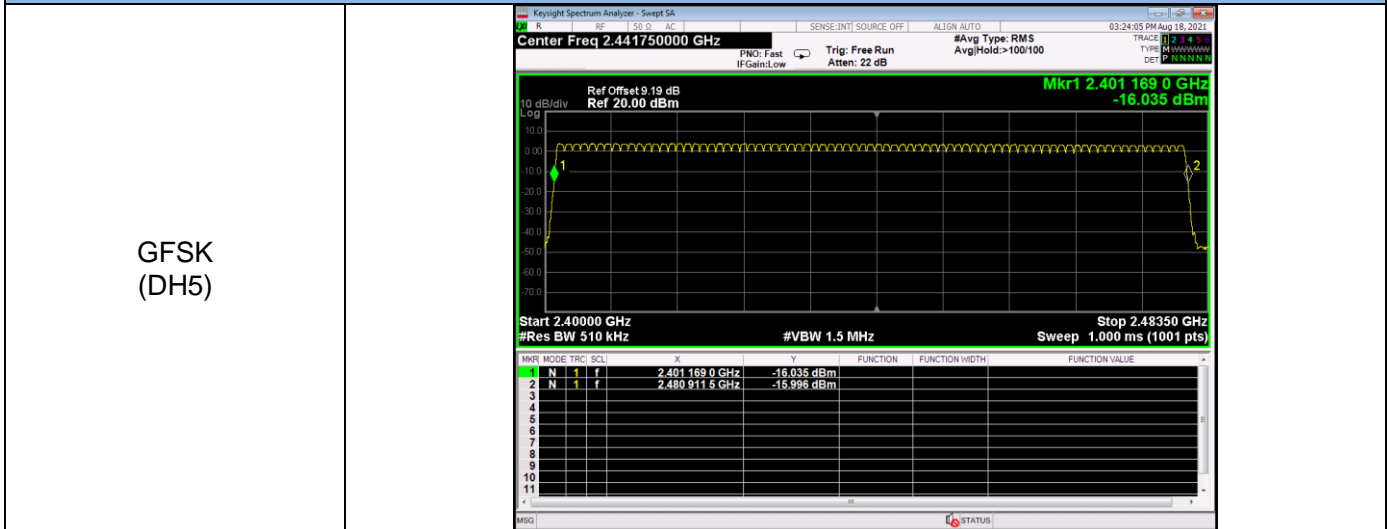
PASS

Please refer to the following table.

For Soundbar unit

Hopping Sequence				
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021
Hopping Channels	Hopping Channels Limits	Min. Hopping Range (%)	Min. Hopping Range Limit(%)	Result
GFSK (DH5)				
79	15	95.50	70.00%	PASS
8DPSK (3-DH5)				
79	15	95.90	70.00%	PASS

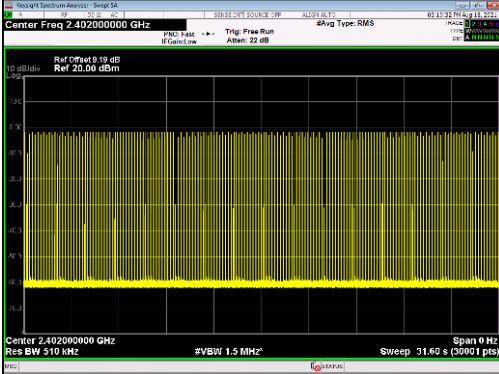
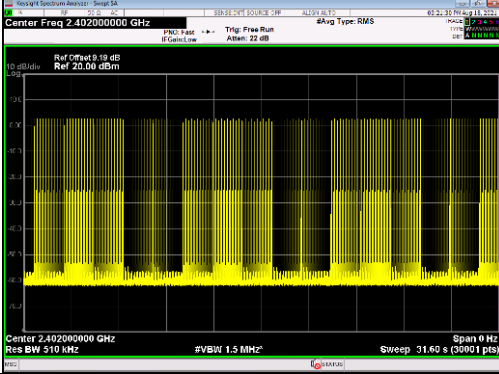
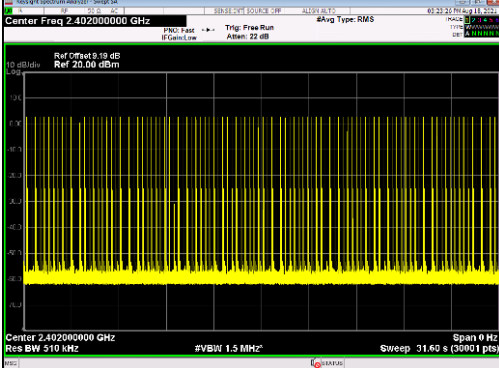
Test Plots



For Soundbar unit

Dwell Time						
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021		
Packet Type	Number of Hopping Channel	Number of transmission in a period (channel number *0.4sec		Dwell Time	Limit (ms)	Result
		Period (Sec)				
GFSK						
DH1	79	31.6		118.668	400	PASS
DH3	79	31.6		259.360	400	PASS
DH5	79	31.6		306.876	400	PASS

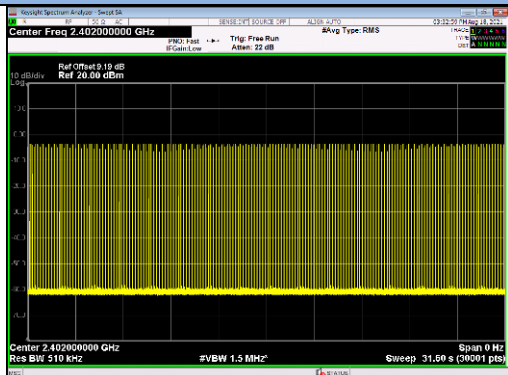
Test Plots

DH1	
DH3	
DH5	

For Soundbar unit

Dwell Time						
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021		
Packet Type	Number of Hopping Channel	Number of transmission in a period (channel number *0.4sec		Dwell Time	Limit (ms)	Result
		Period (Sec)				
8DPSK						
3-DH1	79	31.6		121.220	400	PASS
3-DH3	79	31.6		260.960	400	PASS
3-DH5	79	31.6		260.960	400	PASS

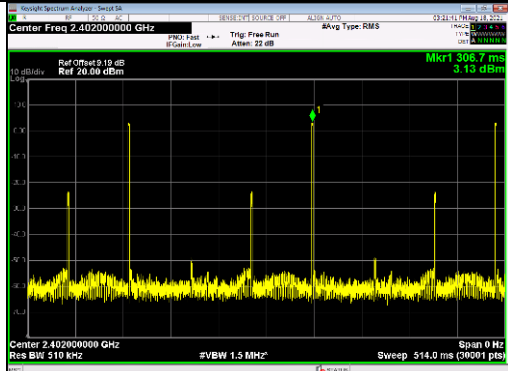
Test Plots

3-DH1	
3-DH3	
3-DH5	

For Soundbar unit

Minimum Frequency Occupation				
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021
Packet Type	Number of Hopping Channel	Number of times (hopping frequency of hopping sequence)	Minimum Limit	Result
GFSK				
DH1	79	2	≥1	PASS
DH3	79	3	≥1	PASS
DH5	79	4	≥1	PASS

Test Plots

DH1	
DH3	
DH5	

For Soundbar unit

Minimum Frequency Occupation				
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021
Packet Type	Number of Hopping Channel	Number of times (hopping frequency of hopping sequence)	Minimum Limit	Result
8DPSK				
3-DH1	79	1	≥1	PASS
3-DH3	79	3	≥1	PASS
3-DH5	79	3	≥1	PASS

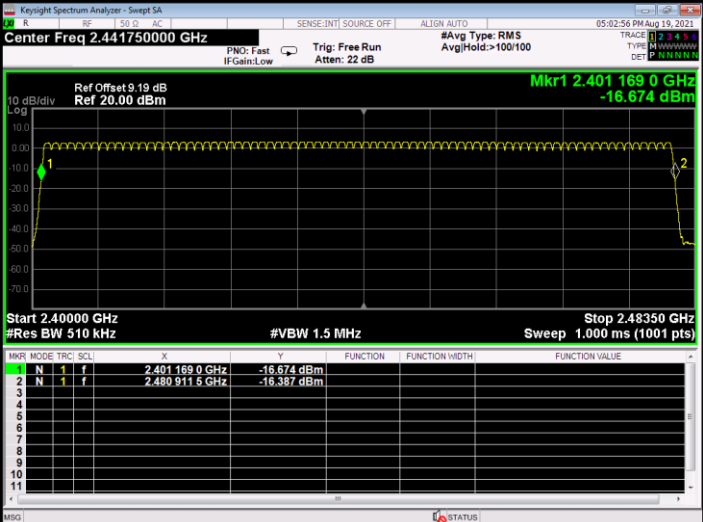
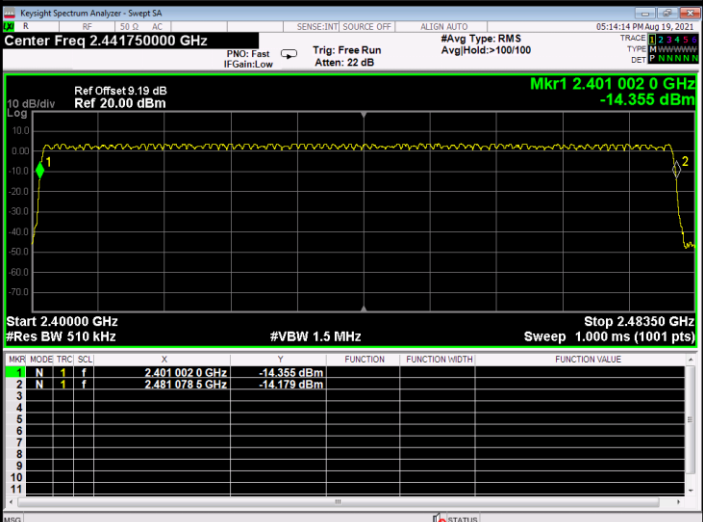
Test Plots

3-DH1	
3-DH3	
3-DH5	

For Subwoofer unit

Hopping Sequence				
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021
Hopping Channels	Hopping Channels Limits	Min. Hopping Range (%)	Min. Hopping Range Limit(%)	Result
GFSK (DH5)				
79	15	95.50	70.00%	PASS
8DPSK (3-DH5)				
79	15	95.90	70.00%	PASS

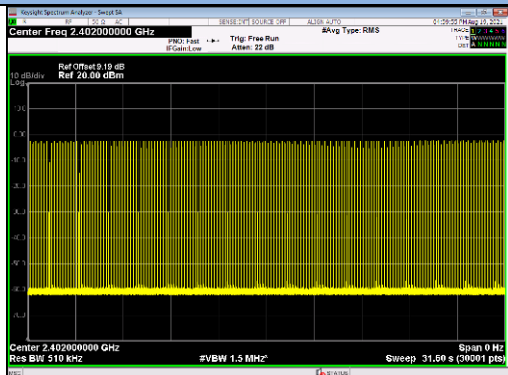
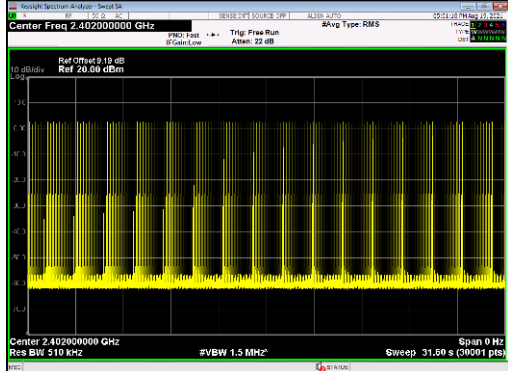
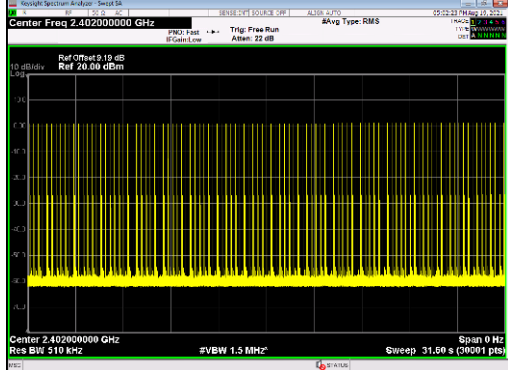
Test Plots

GFSK (DH5)	 <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRIG</th> <th>SCAL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.401169 0 GHz</td> <td>-16.674 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.480911 5 GHz</td> <td>-16.387 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRIG	SCAL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.401169 0 GHz	-16.674 dBm				2	N	1	f	2.480911 5 GHz	-16.387 dBm			
MKR	MODE	TRIG	SCAL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	N	1	f	2.401169 0 GHz	-16.674 dBm																							
2	N	1	f	2.480911 5 GHz	-16.387 dBm																							
8DPSK (3-DH5)	 <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRIG</th> <th>SCAL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.401002 0 GHz</td> <td>-14.355 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.481078 5 GHz</td> <td>-14.179 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRIG	SCAL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.401002 0 GHz	-14.355 dBm				2	N	1	f	2.481078 5 GHz	-14.179 dBm			
MKR	MODE	TRIG	SCAL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	N	1	f	2.401002 0 GHz	-14.355 dBm																							
2	N	1	f	2.481078 5 GHz	-14.179 dBm																							

For Subwoofer unit

Dwell Time						
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021		
Packet Type	Number of Hopping Channel	Number of transmission in a period (channel number *0.4sec		Dwell Time	Limit (ms)	Result
		Period (Sec)				
GFSK						
DH1	79	31.6		118.987	400	PASS
DH3	79	31.6		259.200	400	PASS
DH5	79	31.6		306.983	400	PASS

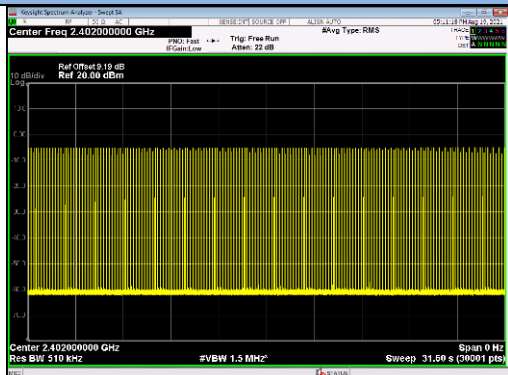
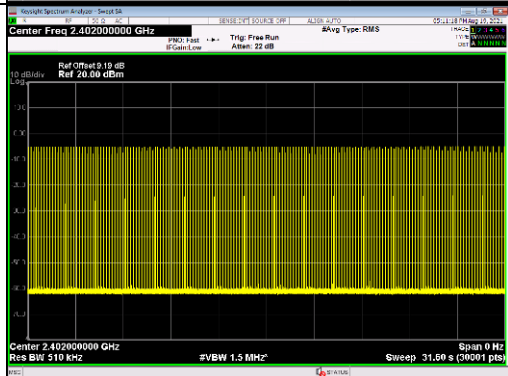
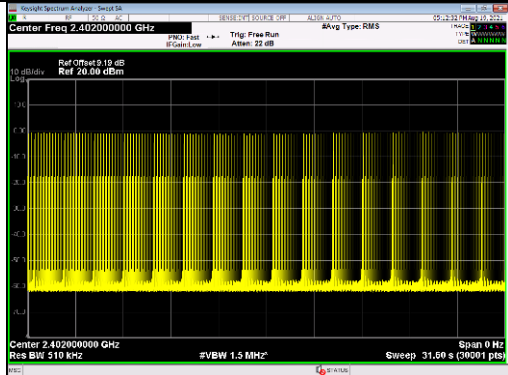
Test Plots

DH1	
DH3	
DH5	

For subwoofer unit

Dwell Time						
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021		
Packet Type	Number of Hopping Channel	Number of transmission in a period (channel number *0.4sec		Dwell Time	Limit (ms)	Result
		Period (Sec)				
8DPSK						
3-DH1	79	31.6		121.220	400	PASS
3-DH3	79	31.6		260.960	400	PASS
3-DH5	79	31.6		308.374	400	PASS

Test Plots

3-DH1	
3-DH3	
3-DH5	

For Subwoofer unit

Minimum Frequency Occupation				
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021
Packet Type	Number of Hopping Channel	Number of times (hopping frequency of hopping sequence)	Minimum Limit	Result
GFSK				
DH1	79	1	≥1	PASS
DH3	79	3	≥1	PASS
DH5	79	3	≥1	PASS

Test Plots

DH1	
DH3	
DH5	

For Subwoofer unit

Minimum Frequency Occupation				
Humidity: 50 %		Temperature : 23 °C		Test Date: August 18, 2021
Packet Type	Number of Hopping Channel	Number of times (hopping frequency of hopping sequence)	Minimum Limit	Result
8DPSK				
3-DH1	79	1	≥1	PASS
3-DH3	79	2	≥1	PASS
3-DH5	79	3	≥1	PASS

Test Plots

3-DH1	
3-DH3	
3-DH5	

12.3 Occupied Channel Bandwidth

LIMITS

Condition	Limit
All types of equipment	Shall fall completely within the band 2400 to 2483.5 MHz
For non-adaptive using wide band modulations other than FHSS system and e.i.r.p > 10dBm	Less than 20MHz
For non-adaptive Frequency Hopping system and e.i.r.p > 10dBm	Less than 5MHz

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

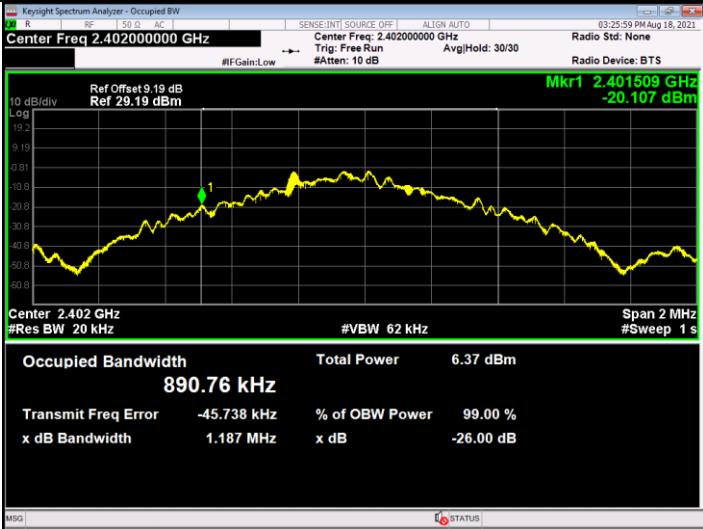
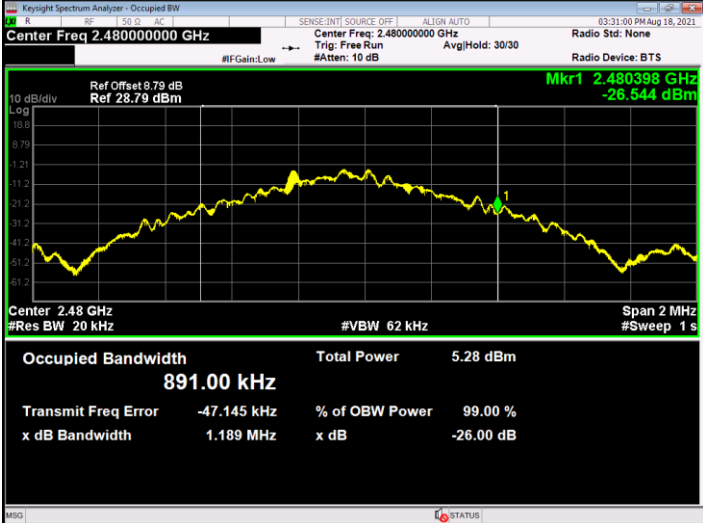
1. Please refer to ETSI EN 300 328 (V_{2.2.2}) clause 5.4.7.2.1 for conducted measurement method.
2. The measurements shall be performed at normal environmental condition.

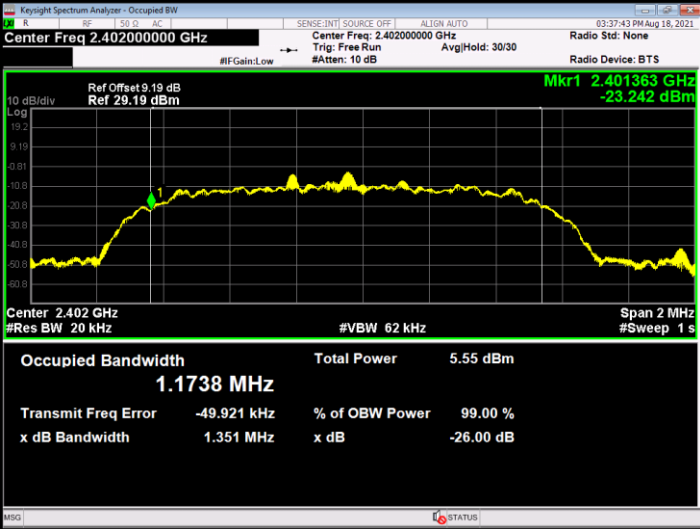
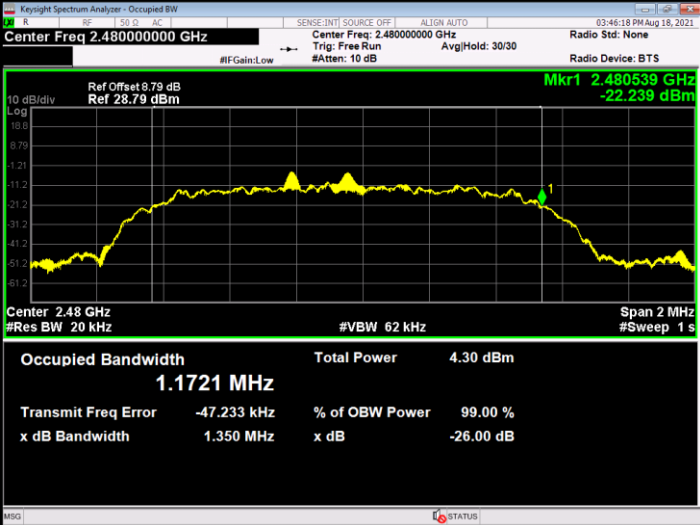
TEST RESULTS

PASS

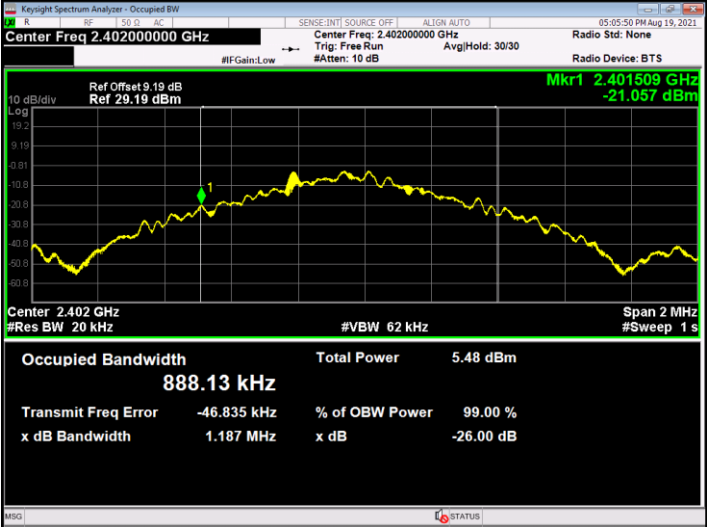
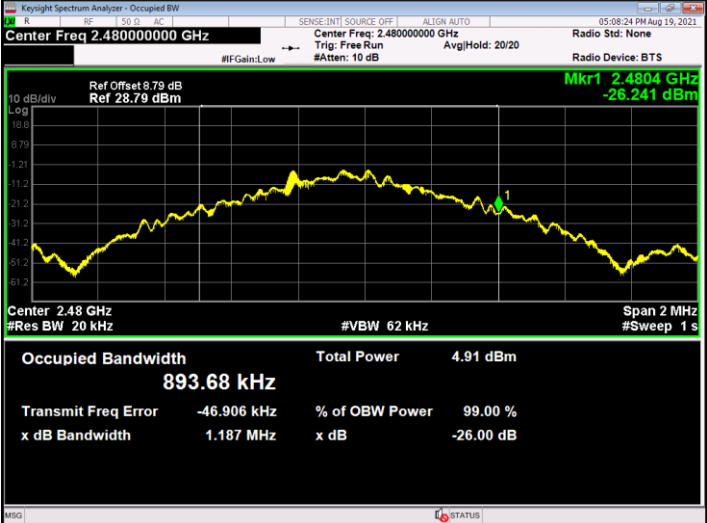
Please refer to the following table.

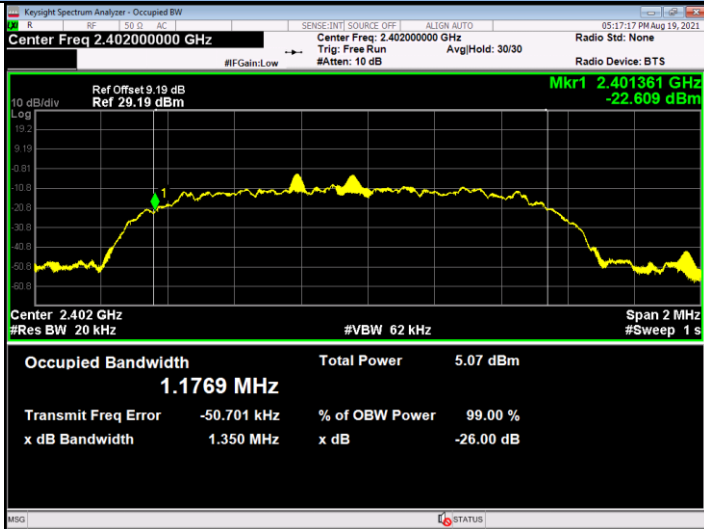
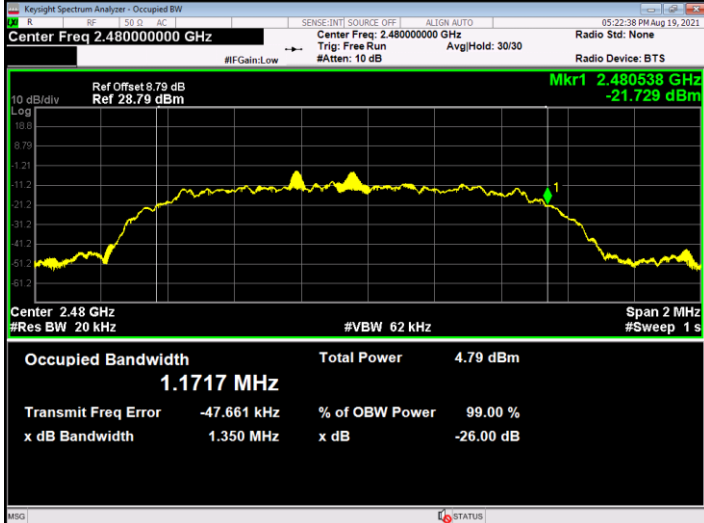
For Soundbar unit

Temperature: 23 °C		Humidity: 50 %		Test Date: August 18, 2021		
GFSK						
Test Frequency (MHz)	Packet Type	99% Bandwidth (MHz)	FL at 99% BW (KHz)	FH at 99% BW (KHz)	Limit	Results
2402	DH5	0.891	2401.509	2402.400	FL > 2.4 GHz and FH < 2.4835 GHz	PASS
2480	DH5	0.891	2479.507	2480.398		PASS
Test Frequency (MHz)	Packet Type	Test Plots				
2402	DH5	 <p>Key Sights Spectrum Analyzer - Occupied BW Center Freq: 2.40200000 GHz Ref Offset: 9.19 dB Ref: 29.19 dBm Mkr1: 2.401509 GHz, -20.107 dBm Occupied Bandwidth: 890.76 kHz Total Power: 6.37 dBm Transmit Freq Error: -45.738 kHz % of OBW Power: 99.00 % x dB Bandwidth: 1.187 MHz x dB: -26.00 dB</p>				
2480	DH5	 <p>Key Sights Spectrum Analyzer - Occupied BW Center Freq: 2.48000000 GHz Ref Offset: 8.79 dB Ref: 28.79 dBm Mkr1: 2.480398 GHz, -26.544 dBm Occupied Bandwidth: 891.00 kHz Total Power: 5.28 dBm Transmit Freq Error: -47.145 kHz % of OBW Power: 99.00 % x dB Bandwidth: 1.189 MHz x dB: -26.00 dB</p>				

Temperature: 23 °C		Humidity: 50 %		Test Date: August 18, 2021		
8DPSK						
Test Frequency (MHz)	Packet Type	99% Bandwidth (MHz)	FL at 99% BW (KHz)	FH at 99% BW (KHz)	Limit	Results
2402	3-DH5	1.174	2401.363	2402.537	FL > 2.4 GHz and FH < 2.4835 GHz	PASS
2480	3-DH5	1.172	2479.367	2480.539		PASS
Test Frequency (MHz)	Packet Type	Test Plots				
2402	3-DH5	 <p>Key parameters from plot: Center Freq: 2.402000000 GHz Occupied Bandwidth: 1.1738 MHz Total Power: 5.55 dBm Transmit Freq Error: -49.921 kHz x dB Bandwidth: 1.351 MHz</p>				
2480	3-DH5	 <p>Key parameters from plot: Center Freq: 2.480000000 GHz Occupied Bandwidth: 1.1721 MHz Total Power: 4.30 dBm Transmit Freq Error: -47.233 kHz x dB Bandwidth: 1.350 MHz</p>				

For Subwoofer unit

Temperature: 23 °C		Humidity: 50 %		Test Date: August 18, 2021		
GFSK						
Test Frequency (MHz)	Packet Type	99% Bandwidth (MHz)	FL at 99% BW (KHz)	FH at 99% BW (KHz)	Limit	Results
2402	DH5	0.888	2401.509	2402.397	FL > 2.4 GHz and FH < 2.4835 GHz	PASS
2480	DH5	0.894	2479.506	2480.400		PASS
Test Frequency (MHz)	Packet Type	Test Plots				
2402	DH5	 <p>Keyight Spectrum Analyzer - Occupied BW Center Freq: 2.40200000 GHz Ref Offset: 9.19 dB, Ref: 29.19 dBm Mkr1: 2.401509 GHz, -21.057 dBm Occupied Bandwidth: 888.13 kHz Total Power: 5.48 dBm Transmit Freq Error: -46.835 kHz, % of OBW Power: 99.00 % x dB Bandwidth: 1.187 MHz, x dB: -26.00 dB</p>				
2480	DH5	 <p>Keyight Spectrum Analyzer - Occupied BW Center Freq: 2.48000000 GHz Ref Offset: 9.79 dB, Ref: 28.79 dBm Mkr1: 2.4804 GHz, -26.241 dBm Occupied Bandwidth: 893.68 kHz Total Power: 4.91 dBm Transmit Freq Error: -46.906 kHz, % of OBW Power: 99.00 % x dB Bandwidth: 1.187 MHz, x dB: -26.00 dB</p>				

Temperature: 23 °C		Humidity: 50 %		Test Date: August 18, 2021		
8DPSK						
Test Frequency (MHz)	Packet Type	99% Bandwidth (MHz)	FL at 99% BW (KHz)	FH at 99% BW (KHz)	Limit	Results
2402	3-DH5	1.177	2401.361	2402.538	FL > 2.4 GHz and FH < 2.4835 GHz	PASS
2480	3-DH5	1.172	2479.367	2480.538		PASS
Test Frequency (MHz)	Packet Type	Test Plots				
2402	3-DH5					
2480	3-DH5					

12.4 Hopping Frequency Separation

LIMITS

Condition	Limit
Nom-adaptive frequency hopping systems	The minimum Hopping Frequency Separation shall be equal to Occupied Channel Bandwidth of a single hop, with a minimum separation of 100 kHz.
Adaptive frequency hopping systems	The minimum Hopping Frequency Separation shall be 100 kHz.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V_{2.2.2}) clause 5.4.5.2.1 for conducted measurement method.
2. The measurements shall be performed at normal environmental condition.

TEST RESULTS

PASS

Please refer to the following table.

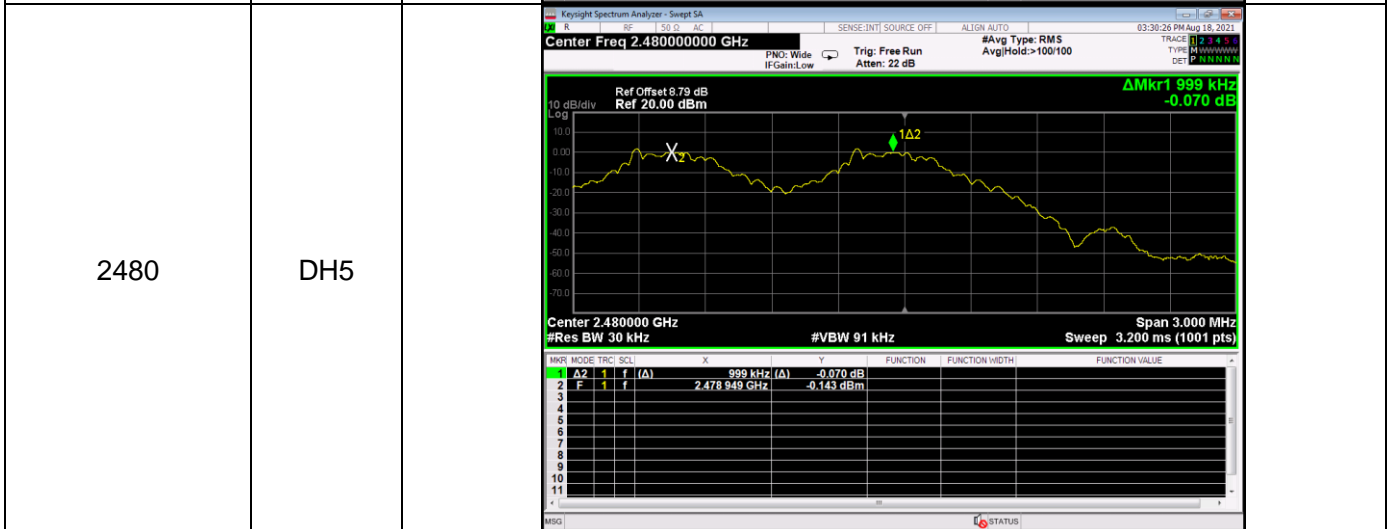
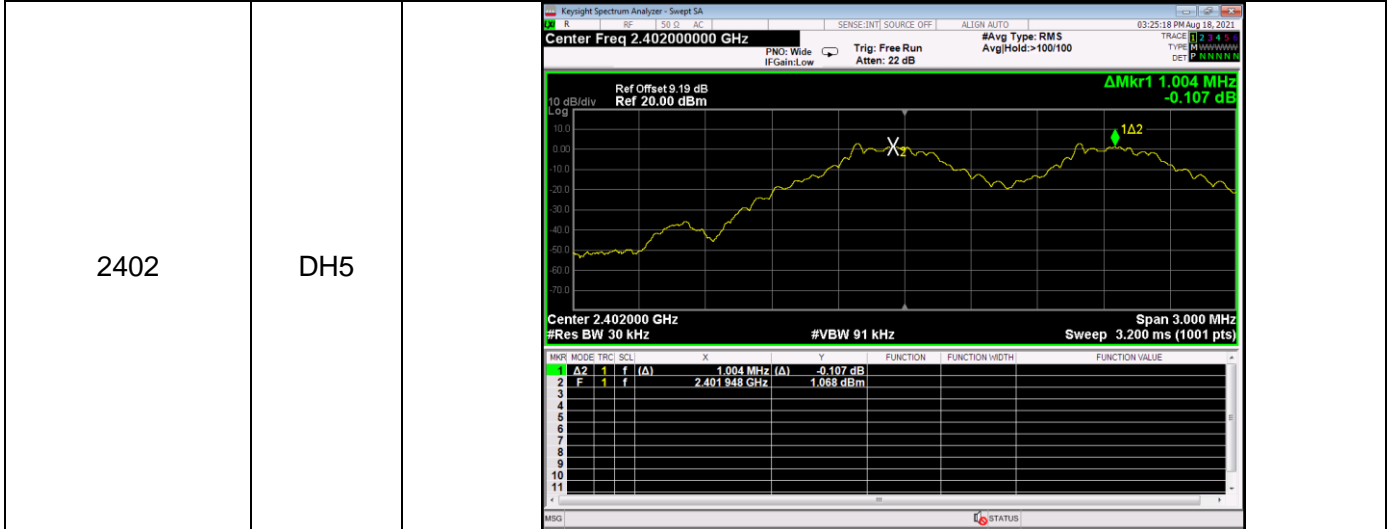
For Soundbar unit

Temperature: 23 °C	Humidity: 50 %	Test Date: August 18, 2021
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GFSK

Test Frequency (MHz)	Packet Type	Channel Separation (KHz)	Limit (MHz) Minimum	Results
2402	DH5	1003.5	0.1	PASS
2480	DH5	999.0	0.1	PASS

Test Plots

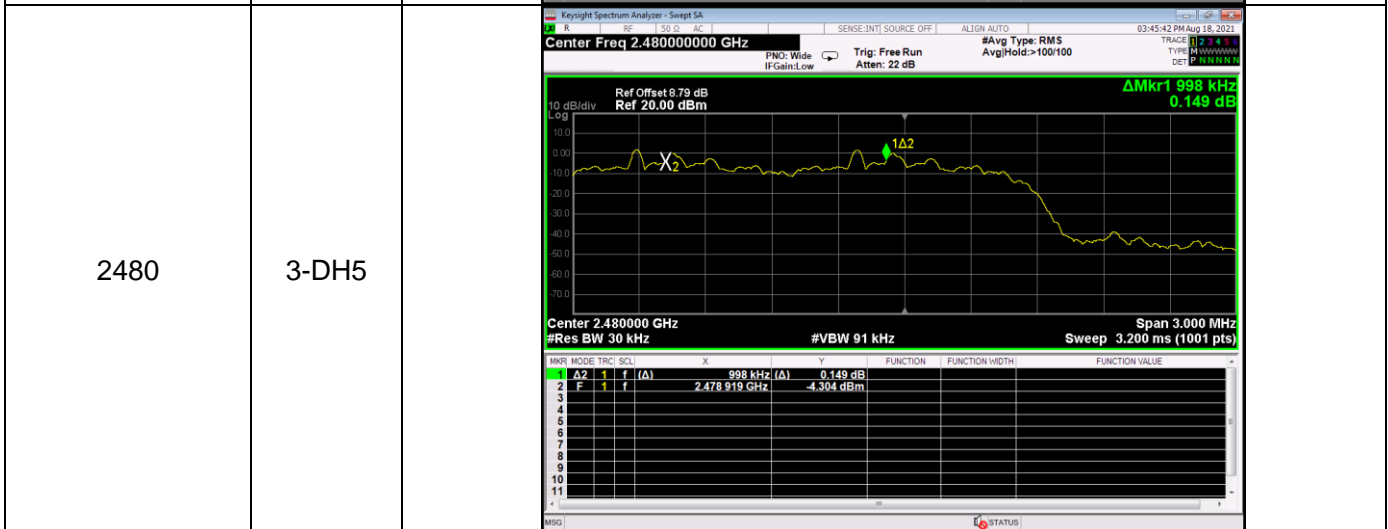
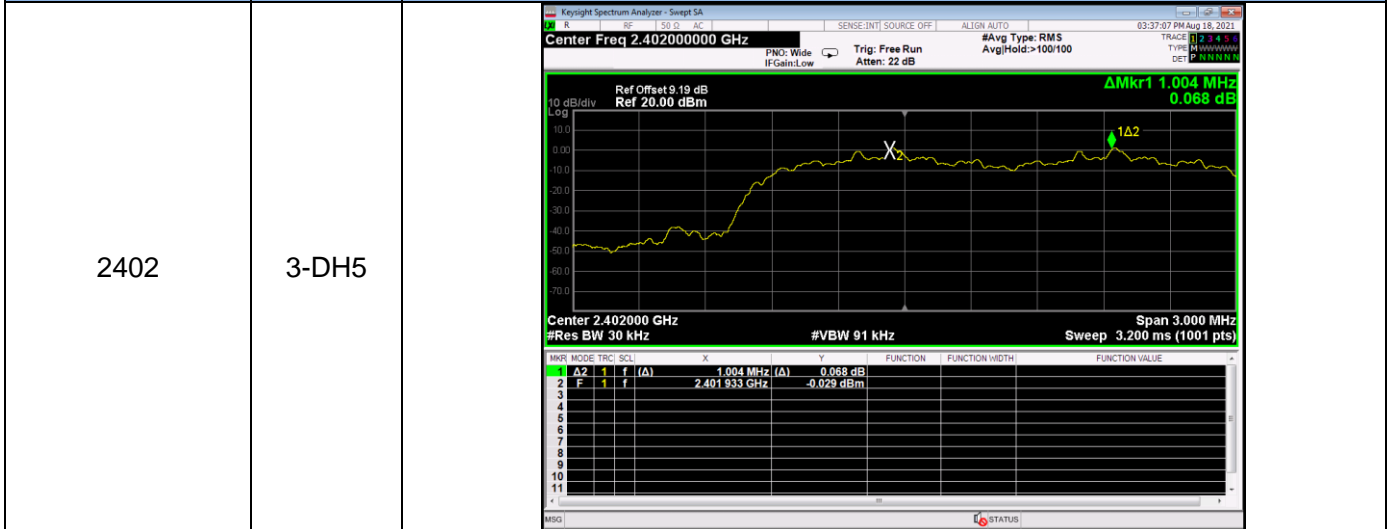


Temperature: 23 °C	Humidity: 50 %	Test Date: August 18, 2021
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8DPSK

Test Frequency (MHz)	Packet Type	Channel Separation (KHz)	Limit (MHz) Minimum	Results
2402	3-DH5	1003.5	0.1	PASS
2480	3-DH5	997.5	0.1	PASS

Test Frequency (MHz)	Packet Type	Test Plots
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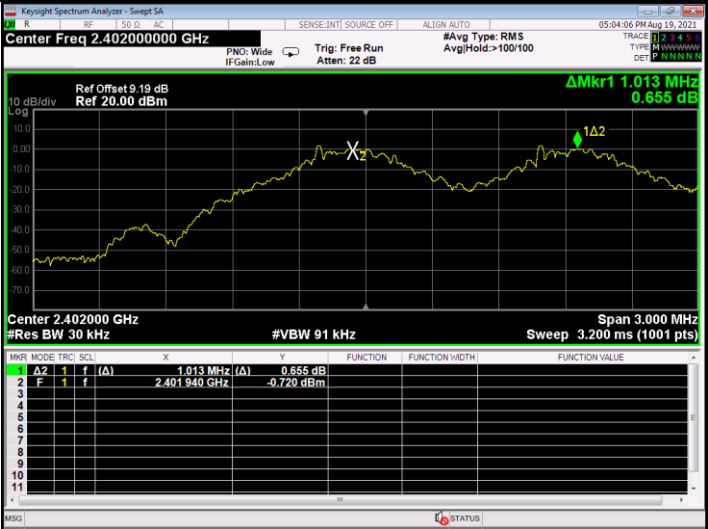

For Subwoofer unit

Temperature: 23 °C	Humidity: 50 %	Test Date: August 18, 2021
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GFSK

Test Frequency (MHz)	Packet Type	Channel Separation (KHz)	Limit (MHz) Minimum	Results
2402	DH5	1012.5	0.1	PASS
2480	DH5	1026.0	0.1	PASS

Test Plots

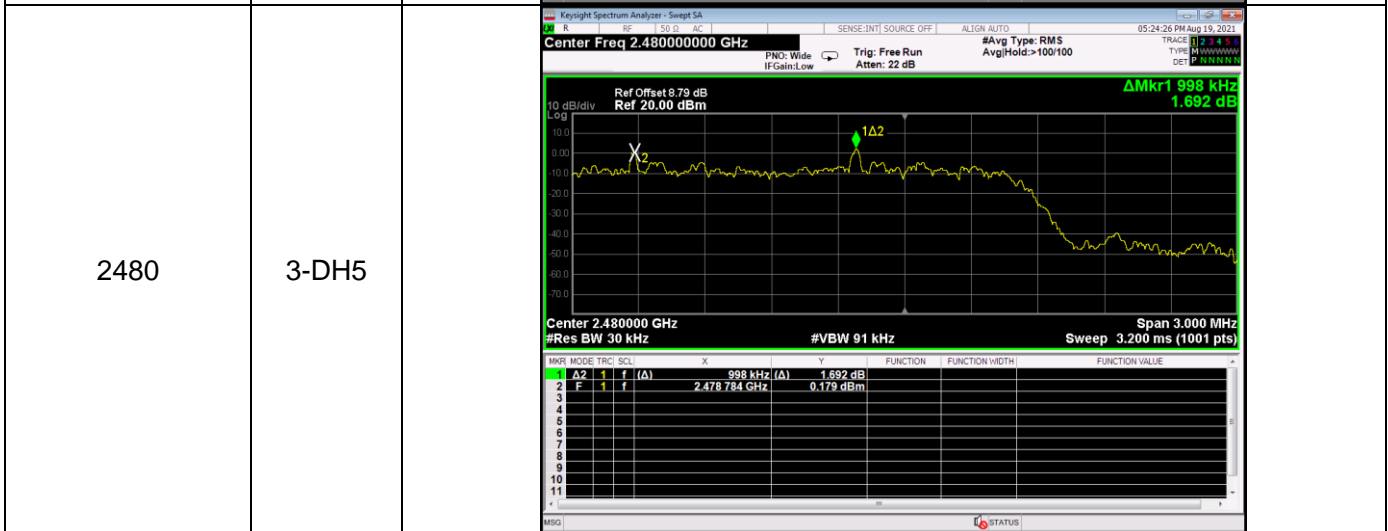
2402	DH5	
2480	DH5	

Temperature: 23 °C	Humidity: 50 %	Test Date: August 18, 2021
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8DPSK

Test Frequency (MHz)	Packet Type	Channel Separation (KHz)	Limit (MHz) Minimum	Results
2402	3-DH5	1179.0	0.1	PASS
2480	3-DH5	997.5	0.1	PASS

Test Frequency (MHz)	Packet Type	Test Plots
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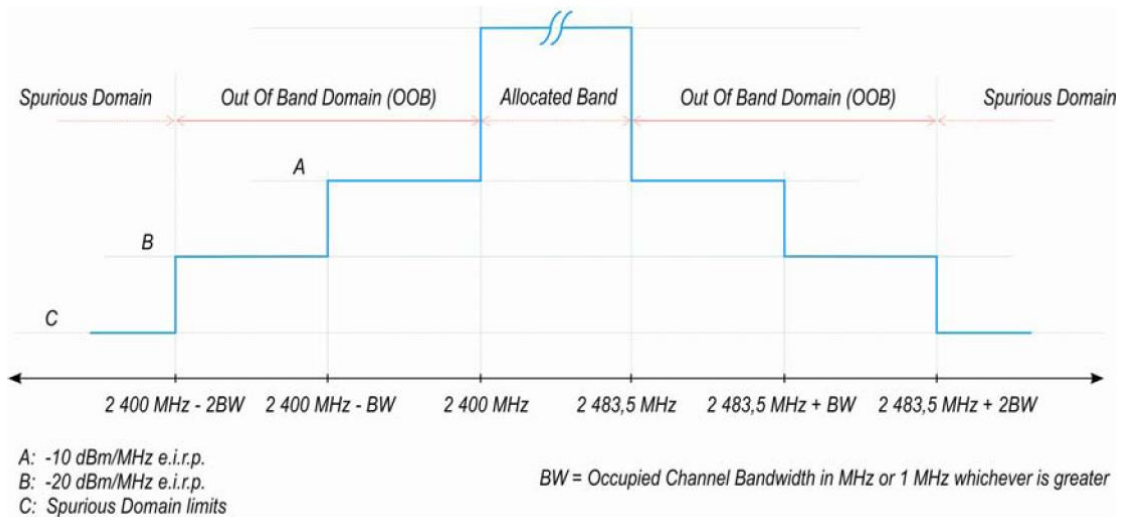


12.5 Transmitter Unwanted Emissions in the OUT-OF BAND Domain

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

Transmit mask



BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

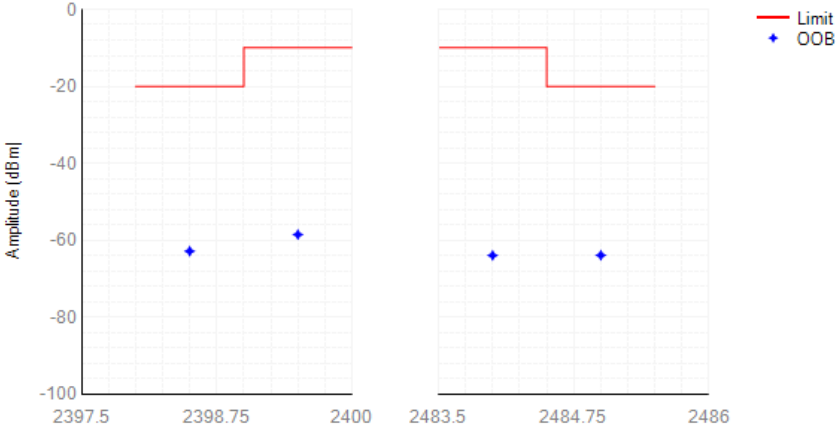
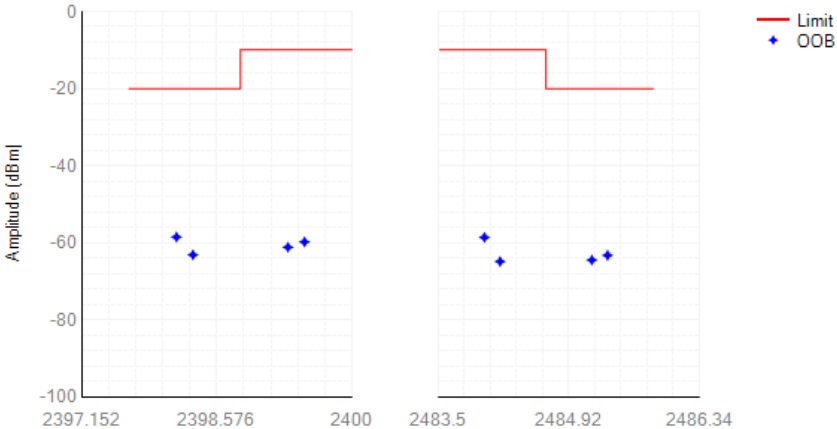
1. Please refer to ETSI EN 300 328 ($V_{2,2,2}$) clause 5.4.8.2.1 for conducted measurement method.
2. The measurements shall be performed at normal environmental conditions.

TEST RESULTS

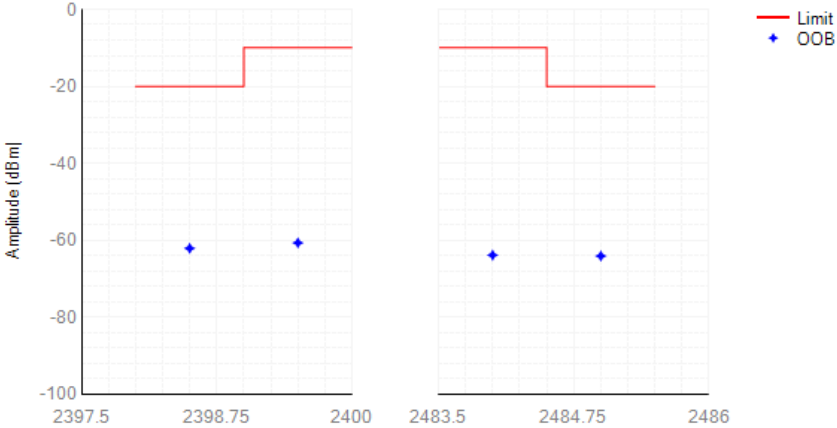
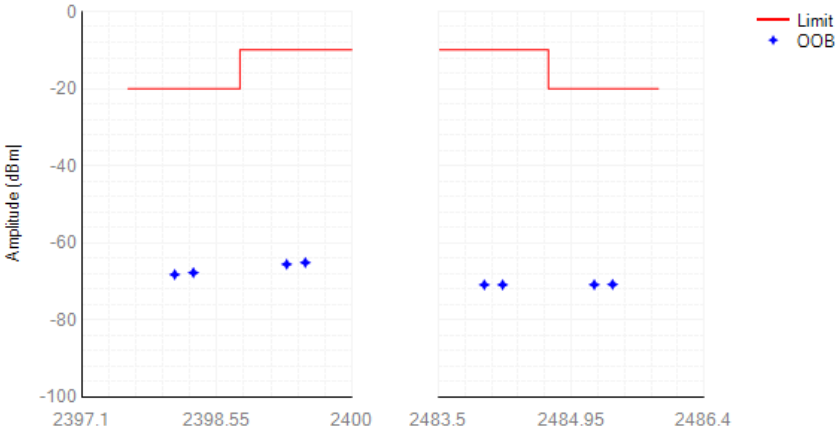
PASS

Please refer to the following test plots.

For Soundbar unit

Temperature: 23 °C	Humidity: 50 %		Test Date: August 18, 2021		
Test Mode	2400-BW~2400/ 2483.5+BW ~2483.5 (dBm/MHz)	Limit (dBm/MHz)	2400-2*BW~2400 -BW/2483.5+2*BW ~2483.5+BW (dBm/MHz)	Limit (dBm/MHz)	Results
GFSK (Hopping)	-58.53	10	-62.84	20	PASS
8DPSK (Hopping)	-59.77	10	-58.50	20	PASS
Test Mode	Test Plots				
GFSK (Hopping)	<p>Frequency: Hopping</p> <p>Transmitter unwanted emissions in the out-of-band domain</p>  <p>Amplitude (dBm)</p> <p>Frequency (MHz)</p> <p>RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001</p>				
8DPSK (Hopping)	<p>Frequency: Hopping</p> <p>Transmitter unwanted emissions in the out-of-band domain</p>  <p>Amplitude (dBm)</p> <p>Frequency (MHz)</p> <p>RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001</p>				

For Subwoofer unit

Temperature: 23 °C	Humidity: 50 %		Test Date: August 18, 2021		
Test Mode	2400-BW~2400/ 2483.5+BW ~2483.5 (dBm/MHz)	Limit (dBm/MHz)	2400-2*BW~2400 -BW/2483.5+2*BW ~2483.5+BW (dBm/MHz)	Limit (dBm/MHz)	Results
GFSK (Hopping)	-60.67	10	-62.09	20	PASS
8DPSK (Hopping)	-65.12	10	-67.75	20	PASS
Test Mode	Test Plots				
GFSK (Hopping)	<p>Frequency: Hopping</p> <p>Transmitter unwanted emissions in the out-of-band domain</p>  <p>Amplitude (dBm)</p> <p>Frequency (MHz)</p> <p>RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001</p>				
8DPSK (Hopping)	<p>Frequency: Hopping</p> <p>Transmitter unwanted emissions in the out-of-band domain</p>  <p>Amplitude (dBm)</p> <p>Frequency (MHz)</p> <p>RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001</p>				

12.6 Transmitter Spurious Emissions and Receiver Spurious Emissions

LIMITS

Limits for EN 300 328: Clause 4.3.1.10.3, Table 4: Transmitter limits for spurious emissions.

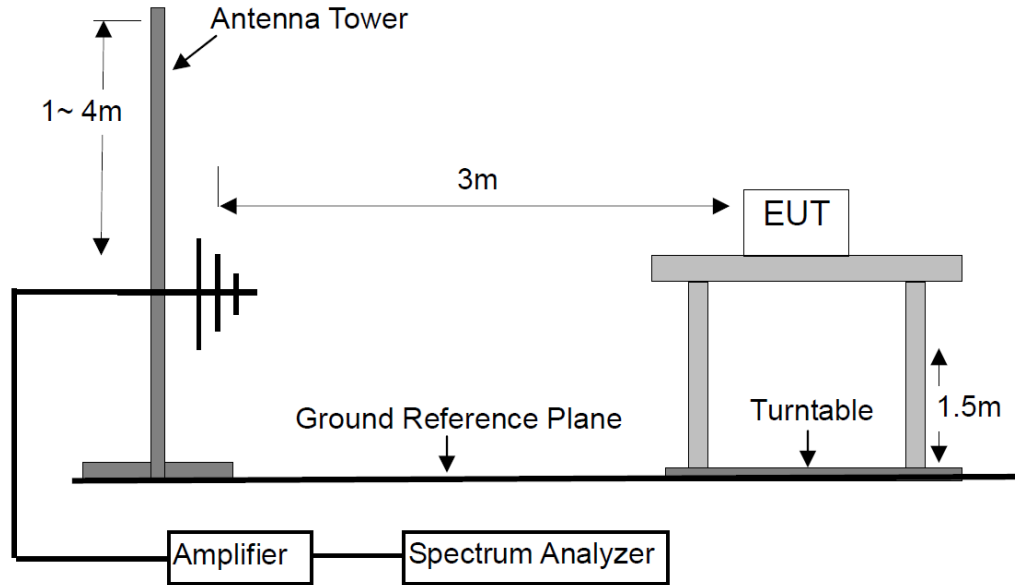
Frequency Range	Maximum power e.r.p. (≤ 1 GHz) e.i.r.p. (> 1 GHz)	Bandwidth
30 MHz to 47MHz	-36 dBm	100KHz
47 MHz to 74MHz	-54 dBm	100KHz
74 MHz to 87.5MHz	-36 dBm	100KHz
87.5 MHz to 118MHz	-54 dBm	100KHz
118 MHz to 174MHz	-36 dBm	100KHz
174 MHz to 230MHz	-54 dBm	100KHz
230 MHz to 470MHz	-36 dBm	100KHz
470 MHz to 694MHz	-54 dBm	100KHz
694 MHz to 1GHz	-36 dBm	100KHz
1GHz to 12.75GHz	-30 dBm	1MHz

Limits for EN 300 328: Clause 4.3.1.11.3, Table 5: Spurious emission limits for receivers

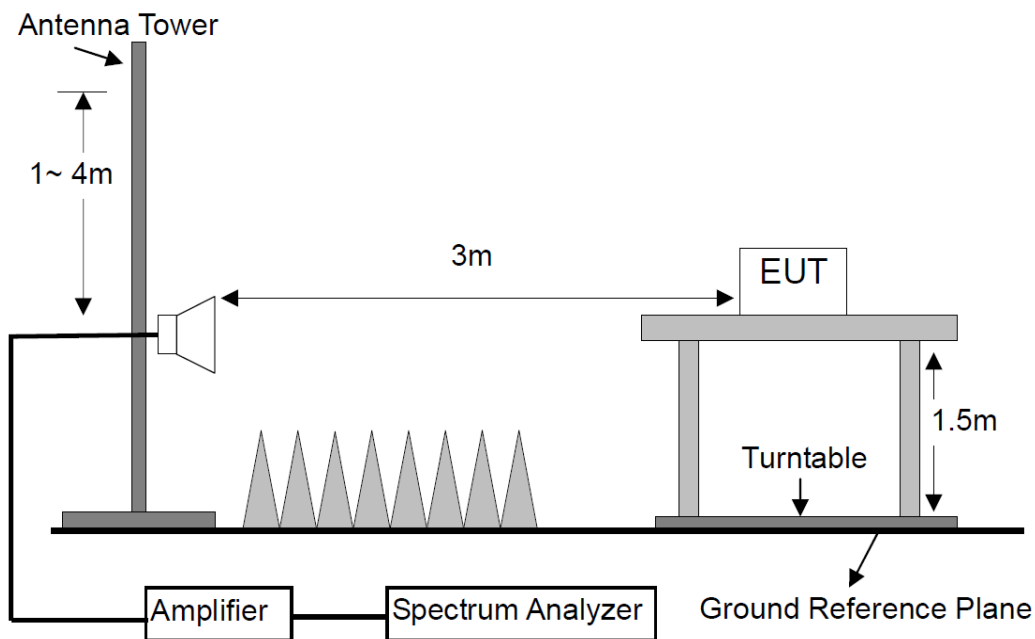
Frequency Range	Maximum power	Bandwidth
30 MHz to 1GHz	-57 dBm	100KHz
1GHz to 12.75GHz	-47 dBm	1MHz

BLOCK DIAGRAM OF TEST SETUP

For Radiated Emission 30-1000MHz



For Radiated Emission Above 1000MHz.



TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V_{2.2.2}) clause 5.4.9.2.2 and ETSI EN 300 328 (V_{2.2.2}) clause 5.4.10.2.2 for radiated measurement method.
2. The measurements shall be performed at normal environmental condition.

TEST RESULTS

PASS

Please refer to the following pages.

For Soundbar unit

Test Date: August 18, 2021		Temperature : 23 °C		Humidity: 50 %
Test Mode: TX (GFSK, The Worst Case)		Test frequency range: 0.03 – 12.75GHz		
Frequency (MHz)	Antenna Polarization	Emission level (dBm)	Limit (dBm)	Margin (dB)
Below 1GHz - Low Channel				
56.1900	Vertical	-75.50	-54.00	-21.50
73.6500	Vertical	-81.28	-54.00	-27.28

612.0000	Horizontal	-78.18	-54.00	-24.18
692.5100	Horizontal	-77.44	-54.00	-23.44

Below 1GHz - High Channel				
187.1400	Vertical	-85.86	-54.00	-31.86
689.6000	Vertical	-77.53	-54.00	-23.53

605.2100	Horizontal	-78.19	-36.00	-42.19
689.6000	Horizontal	-77.66	-36.00	-41.66

Above 1GHz – Low Channel				
4804	Vertical	-46.89	-30.00	-16.89
7206	Vertical	-50.13	-30.00	-20.13

4804	Horizontal	-45.25	-30.00	-15.25
7206	Horizontal	-50.36	-30.00	-20.36

Above 1GHz – High Channel				
4960	Vertical	-52.86	-30.00	-22.86
7440	Vertical	-50.30	-30.00	-20.30

4960	Horizontal	-51.24	-30.00	-21.24
7440	Horizontal	-49.37	-30.00	-19.37

Note:

1. Emission Level (dBm) = Reading level (dBm)+Correction Factor (dB)
2. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.

Test Date: August 18, 2021		Temperature : 23 °C		Humidity: 50 %
Test Mode: RX (GFSK, The Worst Case)		Test frequency range: 0.03 – 12.75GHz		
Frequency (MHz)	Antenna Polarization	Emission level (dBm)	Limit (dBm)	Margin (dB)
Below 1GHz - Low Channel				
915.6100	Vertical	-74.31	-57.00	-17.31
995.1500	Vertical	-73.56	-57.00	-16.56

619.7600	Horizontal	-78.06	-57.00	-21.06
994.1800	Horizontal	-71.83	-57.00	-14.83

Below 1GHz - High Channel				
873.9000	Vertical	-74.36	-57.00	-17.36
999.0300	Vertical	-73.42	-57.00	-16.42

910.7600	Horizontal	-72.98	-57.00	-15.98
977.6900	Horizontal	-72.42	-57.00	-15.42

Above 1GHz – Low Channel				
2402	Vertical	-64.82	-47.00	-17.82

2402	Horizontal	-64.79	-47.00	-17.79

Above 1GHz – High Channel				
2480	Vertical	-65.74	-47.00	-18.74

2480	Horizontal	-64.25	-47.00	-17.25

Note:

1. Emission Level (dBm) = Reading level (dBm)+Correction Factor (dB)
2. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.

For Subwoofer unit

Test Date: August 18, 2021		Temperature : 23 °C		Humidity: 50 %
Test Mode: TX (GFSK, The Worst Case)		Test frequency range: 0.03 – 12.75GHz		
Frequency (MHz)	Antenna Polarization	Emission level (dBm)	Limit (dBm)	Margin (dB)
Below 1GHz - Low Channel				
448.0700	Vertical	-82.42	-36.00	-46.42
685.7199	Vertical	-77.28	-54.00	-23.28

595.5100	Horizontal	-78.07	-54.00	-24.07
692.5100	Horizontal	-77.51	-54.00	-23.51

Below 1GHz - High Channel				
228.8500	Vertical	-85.54	-54.00	-31.54
682.8100	Vertical	-77.37	-54.00	-23.37

551.8600	Horizontal	-79.78	-54.00	-25.78
761.3800	Horizontal	-76.11	-36.00	-40.11

Above 1GHz – Low Channel				
4804	Vertical	-46.77	-30.00	-16.77
7206	Vertical	-50.34	-30.00	-20.34

4804	Horizontal	-44.99	-30.00	-14.99
7206	Horizontal	-50.64	-30.00	-20.64

Above 1GHz – High Channel				
4960	Vertical	-52.84	-30.00	-22.84
7440	Vertical	-50.33	-30.00	-20.33

4960	Horizontal	-52.06	-30.00	-22.06
7440	Horizontal	-49.28	-30.00	-19.28

Note:

1. Emission Level (dBm) = Reading level (dBm)+Correction Factor (dB)
2. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.

Test Date: August 18, 2021		Temperature : 23 °C		Humidity: 50 %
Test Mode: RX (GFSK, The Worst Case)		Test frequency range: 0.03 – 12.75GHz		
Frequency (MHz)	Antenna Polarization	Emission level (dBm)	Limit (dBm)	Margin (dB)
Below 1GHz - Low Channel				
903.9700	Vertical	-67.97	-57.00	-10.97
991.2700	Vertical	-73.39	-57.00	-16.39

71.7100	Horizontal	-80.36	-57.00	-23.36
88.2000	Horizontal	-65.31	-57.00	-8.31

Below 1GHz - High Channel				
938.8900	Vertical	-74.05	-57.00	-17.05
991.2700	Vertical	-73.53	-57.00	-16.53

715.7900	Horizontal	-76.85	-57.00	-19.85
983.5100	Horizontal	-72.29	-57.00	-15.29

Above 1GHz – Low Channel				
2402	Vertical	-65.87	-47.00	-18.87

2402	Horizontal	-65.86	-47.00	-18.86

Above 1GHz – High Channel				
2480	Vertical	-66.01	-47.00	-19.01

2480	Horizontal	-66.36	-47.00	-19.36

Note:

1. Emission Level (dBm) = Reading level (dBm)+Correction Factor (dB)
2. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.

12.6 Receiver Blocking

LIMITS

Adaptive equipment using wide band modulations, shall comply with the requirements defined in clauses 4.3.2.11.3 and clauses 4.3.2.11.4 in the presence of a blocking signal with characteristics as below table.

(1) Receiver Blocking parameters for Receiver Category 1 equipment

Receiver Category 1 Equipment			
Wanted signal mean power from companion device (dBm) (See note 1 and 4)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm) (See note 4)	Type of blocking signal
(-133dBm+10xlog ₁₀ (OCBW) Or -68dBm whichever is less (See note 2)	2 380	-34	CW
	2 504		
(-139dBm+10xlog ₁₀ (OCBW) Or -74dBm whichever is less (See note 3)	2 300		
	2 330		
	2 360		
	2 524		
	2 584		
2 674			

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{min} + 26$ dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to $P_{min} + 20$ dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

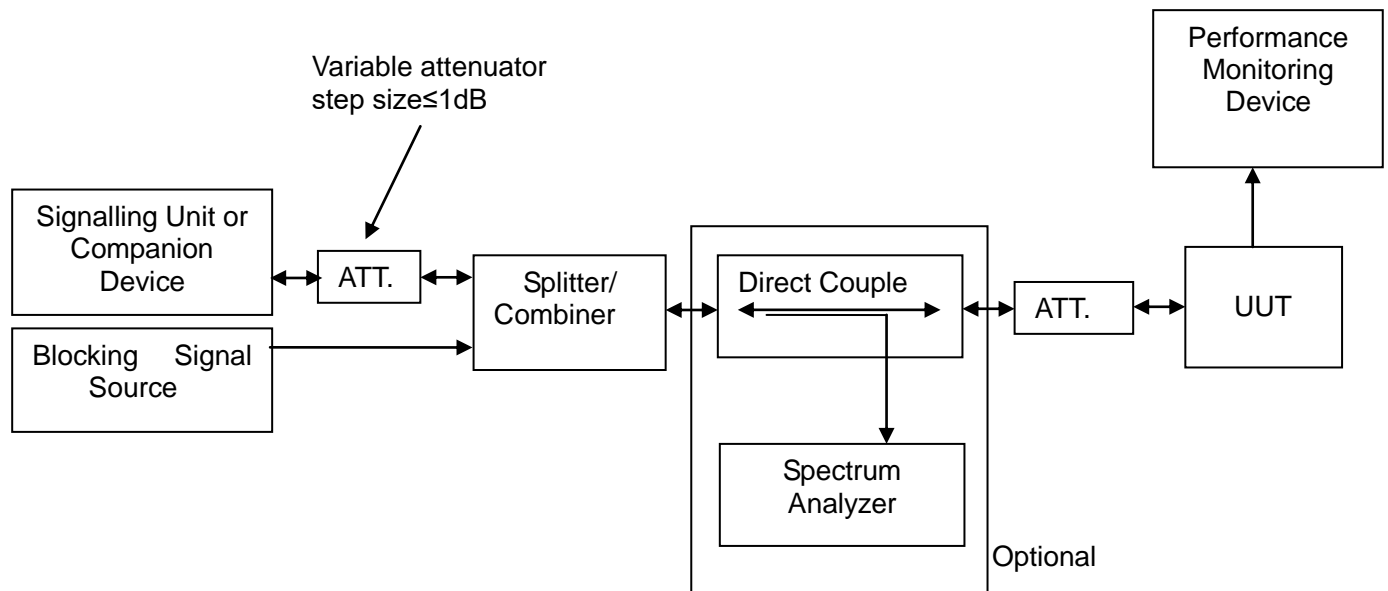
(2) Receiver Blocking parameters receiver category 2 equipment

Receiver Category 2 Equipment			
Wanted signal mean power from companion device (dBm) (See note 1 and 3)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm) (See note 3)	Type of blocking signal
(-139dBm+10xlog ₁₀ (OCBW)+10dB) Or -74dBm+10dB whichever is less(See note 2)	2 380	-34	CW
	2 504		
	2 300		
	2 584		
NOTE 1: OCBW is in Hz.			
NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to Pmin + 26 dB where Pmin is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.			
NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

(3) Receiver Blocking parameters receiver category 3 equipment

Receiver Category 3 Equipment			
Wanted signal mean power from companion device (dBm) (See note 1 and 3)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm) (See note 3)	Type of blocking signal
(-139dBm+10xlog ₁₀ (OCBW)+20dB) Or -74dBm+20dB whichever is less(See note 2)	2 380	-34	CW
	2 504		
	2 300		
	2 584		
NOTE 1: OCBW is in Hz.			
NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative the test may be performed using a wanted signal up to Pmin + 30 dB where Pmin is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.			
NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V_{2.2.2}) clause 5.4.11.2.1 for conducted measurement method.
2. The measurements shall be performed at normal environmental condition.

TEST RESULTS

Pass.

Please refer to following data tables.

Temperature: 20 °C		Humidity : 53 %		Test Date: August 18, 2021	
Antenna Assembly Gain: 0 dBi					
<input type="checkbox"/> Category 1		<input checked="" type="checkbox"/> Category 2		<input type="checkbox"/> Category 3	
Wanted signal mean power from companion device (dBm)		Blocking signal frequency (MHz)	Blocking signal power (dBm)	PER(%)	PER Limit (%)
For Soundbar unit					
GFSK Low channel (OCBWmin:0.891MHz)					
-69.50		2380	-34.00	2.94	10
		2504		1.88	10
		2 300		0.35	10
		2 584		1.63	10
GFSK High channel (OCBWmin:0.891MHz)					
-69.50		2380	-34.00	1.45	10
		2504		1.96	10
		2 300		2.04	10
		2 584		1.52	10

Temperature: 20 °C		Humidity : 53 %		Test Date: August 18, 2021	
Antenna Assembly Gain: 0 dBi					
<input type="checkbox"/> Category 1		<input checked="" type="checkbox"/> Category 2		<input type="checkbox"/> Category 3	
Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	PER(%)	PER Limit (%)	
For Subwoofer unit					
GFSK Low channel (OCBWmin:0.888MHz)					
-69.52	2380	-34.00	2.55	10	
	2504		3.76	10	
	2 300		4.12	10	
	2 584		3.49	10	
GFSK High channel (OCBWmin:0.894MHz)					
-69.49	2380	-34.00	3.54	10	
	2504		4.24	10	
	2 300		3.02	10	
	2 584		2.98	10	

13. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 13, 2021	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 23, 2021	1 Year
3.	Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Mar. 13, 2021	1 Year
4.	Spectrum Analyzer	Keysight	N9020A	MY54200831	Mar. 13, 2021	1 Year
5.	Horn Antenna	Schwarzbeck	BBHA9170	9170-172	Mar. 23, 2021	2 Year
6.	Power Sensor	DARE	RPR3006W	15I00041SNO 64	Mar. 13, 2021	1 Year
7.	Communication Tester	Rohde & Schwarz	CMW500	149004	Mar. 13, 2021	1 Year
8.	Horn Antenna	COM-Power	AH-118	071078	Mar. 23, 2021	1 Year
9.	Pre-Amplifier	HP	HP 8449B	3008A00964	Mar. 13, 2021	1 Year
10.	Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 13, 2021	1 Year
11.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 13, 2021	1 Year
12.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar.13, 2021	1 Year
13.	Temperature & Humidity Chamber	REMAFEE	SYHR225L	N/A	Mar. 13, 2021	1 Year
14.	DC Source	Maynuo	MY8811	N/A	Mar. 13, 2021	1 Year
15.	Test Software	N/A	MTS8310	N/A	N/A	N/A
16.	Signal Generator	Agilent	E4421B	MY41000708	Mar. 13, 2021	1 Year
17.	Signal Generator	Agilent	N5182A	MY48180739	Mar. 13, 2021	1 Year

APPENDIX I - Information as required by ETSI EN 300 328 V2.2.2

In accordance with EN 300 328, clause 5.4.1, the following information is provided by the supplier.

a)	The type of modulation used by the equipment:	<input checked="" type="checkbox"/> FHSS <input type="checkbox"/> Other forms of modulation
b)	In case of FHSS modulation:	<p>In case of non-Adaptive Frequency Hopping equipment: The number of Hopping Frequencies: <u>79</u></p> <p>In case of Adaptive Frequency Hopping Equipment: The maximum number of Hopping Frequencies: <u>79</u> ; minimum: <u>79</u></p> <p>The (Average) Dwell Time: <u>307.6785</u></p>
c)	Adaptive / non-adaptive equipment:	<input type="checkbox"/> Non-adaptive Equipment <input checked="" type="checkbox"/> Adaptive Equipment without the possibility to switch to a non-adaptive mode <input type="checkbox"/> Adaptive Equipment which can also operate in a non-adaptive mode
d)	In case of adaptive equipment:	<p>The maximum Channel Occupancy Time (COT) implemented by the equipment: _____ ms</p> <input checked="" type="checkbox"/> The equipment has implemented an LBT based DAA mechanism <p>In case of equipment using modulation different from FHSS:</p> <input type="checkbox"/> The equipment is Frame Based equipment <input type="checkbox"/> The equipment is Load Based equipment <input type="checkbox"/> The equipment can switch dynamically between Frame Based and Load Based equipment <p>The CCA time implemented by the equipment: _____ μs</p> <input type="checkbox"/> The equipment has implemented an non-LBT based DAA mechanism <input type="checkbox"/> The equipment can operate in more than one adaptive mode
e)	In case of non-adaptive Equipment:	<p>The maximum RF Output Power (e.i.r.p.): <u>2.28</u> dBm</p> <p>The maximum (corresponding) Duty Cycle: _____ %</p> <p>Equipment with dynamic behaviour, that behaviour is described here. (e.g. the different combinations of duty cycle and orresponding power levels to be declared):</p>
f)	The worst case operational mode for each of the following tests:	<p>RF Output Power <u>GFSK</u></p> <p>Power Spectral Density <u>N/A</u></p> <p>Duty cycle, Tx-Sequence, Tx-gap <u>N/A</u></p> <p>Accumulated Transmit time, Frequency Occupation & Hopping Sequence (only for FHSS equipment) _____</p> <p>Hopping Frequency Separation (only for FHSS equipment) <u>GFSK</u></p> <p>Medium Utilisation <u>N/A</u></p> <p>Adaptivity & Receiver Blocking <u>N/A</u></p> <p>Nominal Channel Bandwidth <u>8DPSK</u></p> <p>Transmitter unwanted emissions in the OOB domain <u>8DPSK</u></p> <p>Transmitter unwanted emissions in the spurious domain <u>GFSK</u></p> <p>Receiver spurious emissions <u>GFSK</u></p>

g)	The different transmit operating modes (tick all that apply):	<input checked="" type="checkbox"/> Operating mode 1: Single Antenna Equipment <input checked="" type="checkbox"/> Equipment with only 1 antenna <input type="checkbox"/> Equipment with 2 diversity antennas but only 1 antenna active at any moment in time <input type="checkbox"/> Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems) <input type="checkbox"/> Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming <input type="checkbox"/> Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode) <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1 <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2 NOTE: Add more lines if more channel bandwidths are supported. <input type="checkbox"/> Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming <input type="checkbox"/> Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode) <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1 <input type="checkbox"/> High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2 NOTE: Add more lines if more channel bandwidths are supported.
h)	In case of Smart Antenna Systems:	The number of Receive chains: _____ The number of Transmit chains: _____ <input type="checkbox"/> symmetrical power distribution; <input type="checkbox"/> asymmetrical power distribution In case of beam forming, the maximum beam forming gain: NOTE: Beam forming gain does not include the basic gain of a single antenna.
i)	Operating Frequency Range(s) of the equipment:	Operating Frequency Range 1: <u>2402</u> MHz to <u>2480</u> MHz Operating Frequency Range 2: _____ MHz to _____ MHz
j)	Nominal Channel Bandwidth(s):	Nominal Channel Bandwidth 1: <u>891 (Soundbar) / 888 (Subwoofer)</u> KHz Nominal Channel Bandwidth 2: <u>1174 (Soundbar) 1177 (Subwoofer)</u> KHz Nominal Channel Bandwidth 3: _____ KHz Nominal Channel Bandwidth 4: _____ KHz
k)	Type of Equipment (stand-alone, combined, plug-in radio device, etc.)	<input checked="" type="checkbox"/> Stand-alone <input type="checkbox"/> Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment) <input type="checkbox"/> Plug-in radio device (Equipment intended for a variety of host systems) <input type="checkbox"/> Other _____
l)	The normal and the extreme operating conditions that apply to the equipment:	Normal operating conditions (if applicable): Operating temperature range: <u>25</u> °C Other (please specify if applicable), Extreme operating conditions: Operating temperature range: Minimum: <u>0</u> °C Maximum: <u>40</u> °C Details provided are for the: <input checked="" type="checkbox"/> stand-alone equipment <input type="checkbox"/> combined (or host) equipment <input type="checkbox"/> test jig

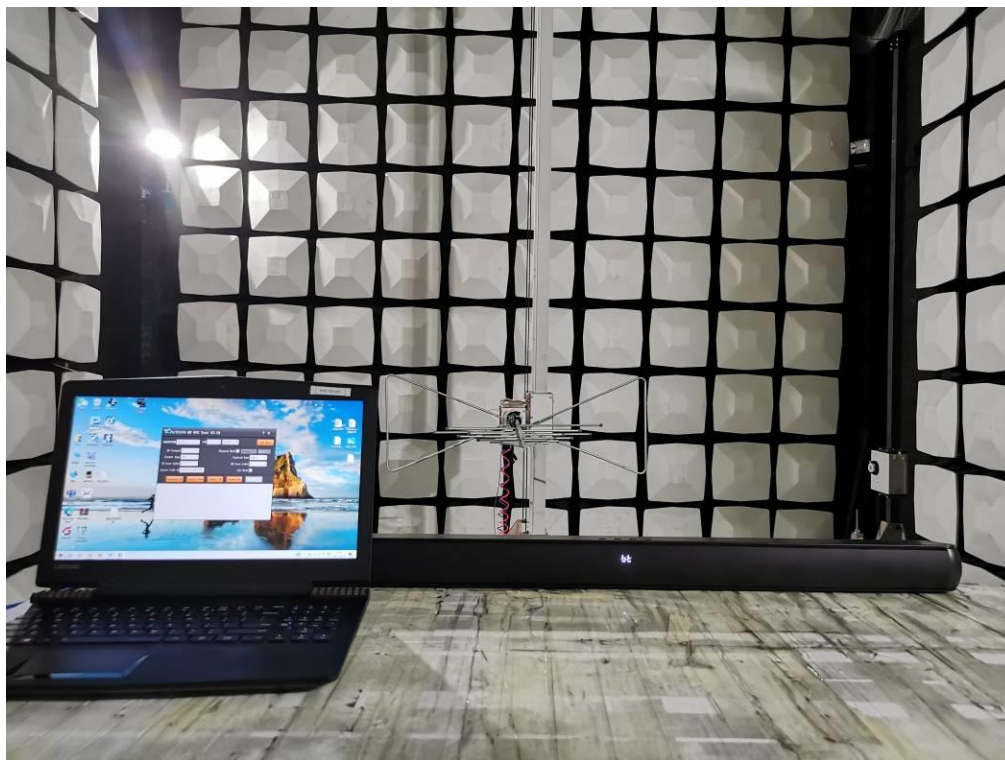
m)	<p>The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels:</p>	<p>Antenna Type:</p> <p><input checked="" type="checkbox"/> PCB Antenna: Antenna Gain: <u> 0 </u> dBi</p> <p>If applicable, additional beamforming gain (excluding basic antenna gain): <u> </u> dB</p> <p><input type="checkbox"/> Temporary RF connector provided</p> <p><input type="checkbox"/> No temporary RF connector provided</p> <hr/> <p><input type="checkbox"/> Dedicated Antennas (equipment with antenna connector)</p> <p><input type="checkbox"/> Single power level with corresponding antenna(s)</p> <p><input type="checkbox"/> Multiple power settings and corresponding antenna(s)</p> <p>Number of different Power Levels: <u> </u></p> <p>Power Level 1: <u> </u> dBm</p> <p>Power Level 2: <u> </u> dBm</p> <p>Power Level 3: <u> </u> dBm</p> <p>NOTE 1: Add more lines in case the equipment has more power levels..</p> <p>NOTE 2: These power levels are conducted power levels (at antenna connector).</p> <p>For each of the Power Levels, provide the intended antenna assemblies, their corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable</p> <p>Power Level 1: <u> </u></p> <p>Number of antenna assemblies provided for this power level:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;">Assembly #</th> <th style="width: 20%;">Gain (dBi)</th> <th style="width: 20%;">e.i.r.p.(dBm)</th> <th style="width: 45%;">Part number or model name</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: Add more rows in case more antenna assemblies are supported for this power level.</p> <p>Power Level 2: <u> </u></p> <p>Number of antenna assemblies provided for this power level:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;">Assembly #</th> <th style="width: 20%;">Gain (dBi)</th> <th style="width: 20%;">e.i.r.p.(dBm)</th> <th style="width: 45%;">Part number or model name</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: Add more rows in case more antenna assemblies are supported for this power level.</p> <p>Power Level 3: <u> </u></p> <p>Number of antenna assemblies provided for this power level:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;">Assembly #</th> <th style="width: 20%;">Gain (dBi)</th> <th style="width: 20%;">e.i.r.p.(dBm)</th> <th style="width: 45%;">Part number or model name</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: Add more rows in case more antenna assemblies are supported for this power level.</p>	Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name	1				2				Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name	1				2				Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name	1				2			
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n)	The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:	<p>Details provided are for the:</p> <input checked="" type="checkbox"/> stand-alone equipment <input type="checkbox"/> combined (or host) equipment <input type="checkbox"/> test jig <p>Supply Voltage:</p> <input checked="" type="checkbox"/> AC mains State AC voltage <u>AC 100-240</u> V <input type="checkbox"/> DC State, DC voltage <u> </u> V <p>In case of DC, indicate the type of power source</p> <input type="checkbox"/> Internal Power Supply <input type="checkbox"/> External Power Supply or AC/DC adapter <input type="checkbox"/> Battery <input type="checkbox"/> Other: <u> </u>
o)	Describe the test modes available which can facilitate testing:	The EUT provides TX Mode to control RF signal transmission
p)	The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], proprietary, etc.):	Bluetooth®
q)	If applicable, the statistical analysis referred to in clause 5.4.1 q)	(to be provided as separate attachment)
r)	If applicable, the statistical analysis referred to in clause 5.4.1 r)	(to be provided as separate attachment)
s)	Geo-location capability supported by the equipment:	<input type="checkbox"/> Yes <input type="checkbox"/> The geographical location determined by the equipment as defined in clause 4.3.1.13.2 or clause 4.3.2.12.2 is not accessible to the user <input checked="" type="checkbox"/> No
t)	Describe the minimum performance criteria that apply to the equipment (see clause 4.3.1.12.3 or clause 4.3.2.11.3):	/
E.3	Combination for testing	/
		/
		/
		/
		/

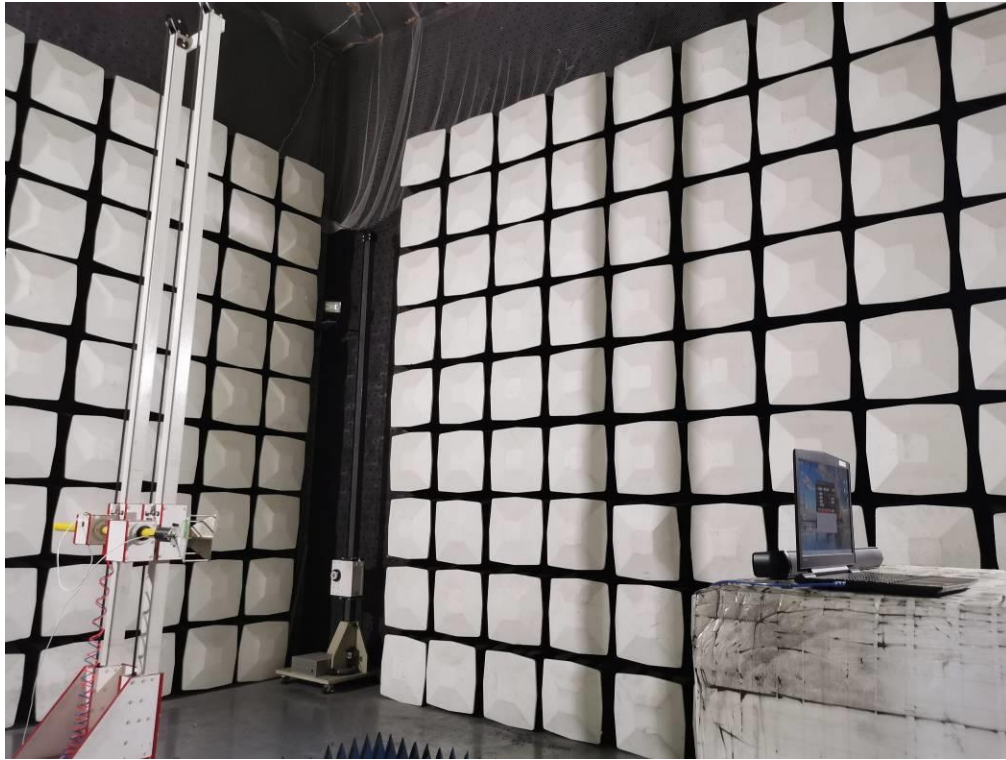
E.4 Additional information provided by the applicant		
E.4.1	Modulation:	ITU Class(es) of emission: <u> F1D, G1D </u> Can the transmitter operate unmodulated? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
E.4.2	Duty Cycle	The transmitter is intended for: <input type="checkbox"/> Continuous duty <input type="checkbox"/> Intermittent duty <input checked="" type="checkbox"/> Continuous operation possible for testing purposes
E.4.3	About the UUT	<input checked="" type="checkbox"/> The equipment submitted are representative production models <input type="checkbox"/> If not, the equipment submitted are pre-production models ? <input type="checkbox"/> If pre-production equipment are submitted, the final production equipment will be identical in all respects with the equipment tested <input type="checkbox"/> If not, supply full details
E.4.4	Additional items and/or supporting equipment provided	<input type="checkbox"/> Spare batteries (e.g. for portable equipment) <input type="checkbox"/> Battery charging device <input type="checkbox"/> External Power Supply or AC/DC adapter <input type="checkbox"/> Test Jig or interface box <input checked="" type="checkbox"/> RF test fixture (for equipment with integrated antennas) <input type="checkbox"/> Host System Manufacturer: _____ Model #: _____ Model name: _____ <input type="checkbox"/> Combined equipment Manufacturer: _____ Model #: _____ Model name: _____ <input checked="" type="checkbox"/> User Manual <input checked="" type="checkbox"/> Technical documentation (Handbook and circuit diagrams)

APPENDIX II – Photographs of Test Set-up

Radiated Emission Below 1 GHz

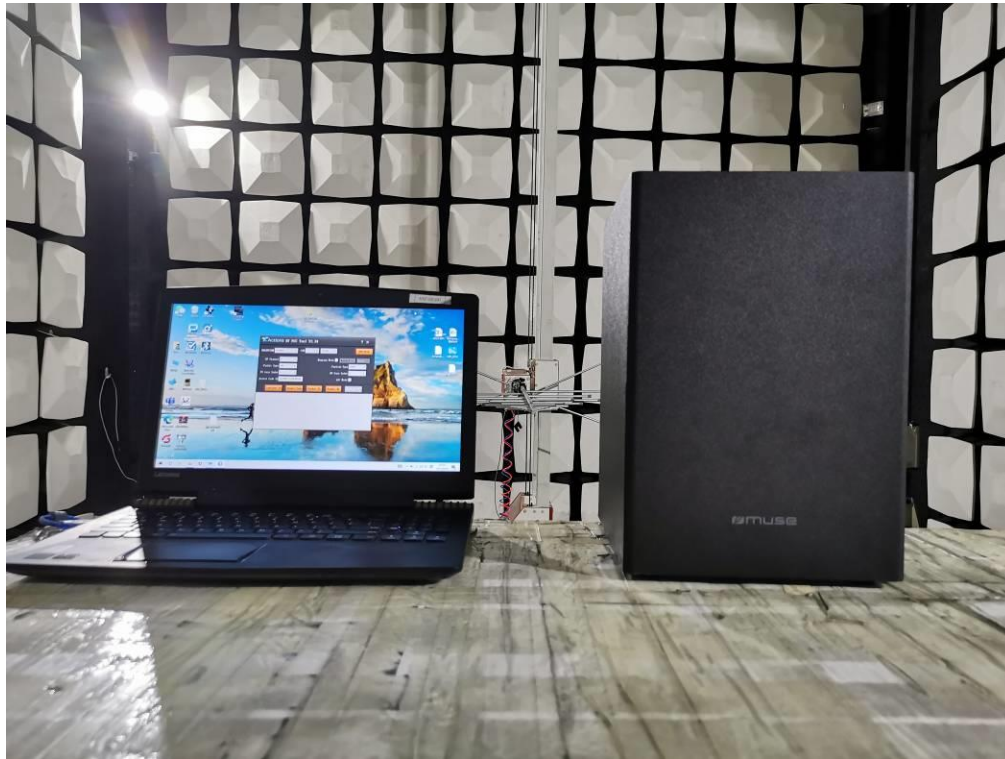


Radiated Emission Above 1 GHz



Radiated Emission Below 1 GHz





Radiated Emission Above 1 GHz



(For photographs of EUT, please refer to report NTC2112026EV00)

---End---