

FCC Test Report

Report No.: AGC01278190311FE03

FCC ID : 2AHQL-MPD4LT

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION: Bluetooth speaker

BRAND NAME : N/A

MPD4LT, MPD20LT, MPD655B, MW-190B, MW-191B, MW-192B, MW-193B, MW-136, MW-137, MW-139, MW-118,MW-119M, MW-325, MW-519, MW-520, MW-208, MW-208B, MW-209, MW-207, MW-530,

MODEL NAME: MW-522, MW-523, MW-524, MW-525, MW-526,

MW-316, MW-220C, MW-225, MW-203, MW-204, MW-205, MW-206, MR-305, MT1, MT2, MT3, MT4, MB-220, MB-221, MB-231, MB-235, MB-236, MB-237,

MB-238, MB-187, MB-189, MW-201

: LI ANG Industrial Co., LTD

DATE OF ISSUE : Apr. 23, 2019

STANDARD(S) : FCC Part 15.247

REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0		Apr. 23, 2019	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	LI ANG Industrial Co., LTD			
Address	5/F,Bantian Commercial Building, Banxuegang Road, Bantian, Longgang, Shenzhen,China			
Manufacturer	Shenzhen MYON Technology Co., Ltd			
Address	Add: 4/F, Building 7, Lijincheng Industrial Park, Gongye Road, Longhua District, Shenzhen, China			
Factory	DONGGUAN YUNLONG ELECTRONICS CO., LTD.			
Address	Building A, Fenghua Industrial Park, Gongao 1st Road, Dalang, Dongguan, Guangdong, China			
Product Designation	Bluetooth speaker			
Brand Name	N/A			
Test Model	MPD4LT			
Serial Model	MPD20LT, MPD655B, MW-190B, MW-191B, MW-192B,MW-193B, MW-136, MW-137, MW-139, MW-118,MW-119M, MW-325, MW-519, MW-520, MW-208, MW-208B, MW-209, MW-207, MW-530, MW-522, MW-523, MW-524, MW-525, MW-526, MW-316, MW-220C, MW-225, MW-203, MW-204, MW-205, MW-206, MR-305, MT1, MT2, MT3, MT4, MB-220, MB-221, MB-231, MB-235, MB-236, MB-237, MB-238, MB-187, MB-189, MW-201			
Difference Description	All the same except the model name and colors.			
Date of test	Apr. 08, 2019~Apr. 23, 2019			
Deviation	None State Communication Commu			
Condition of Test Sample	e Normal			
Test Result	Pass			
Report Template	AGCRT-US-BR/RF			

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC PART 15.247.



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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as "Bluetooth speaker". It is designed by way of utilizing the GFSK, Pi/4 DQPSK and 8DPSK technology to achieve the system operation.

A major technical description of EUT is described as following

7 Thajor toorinioar accomption	in of Eo i is described as following
Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	4.523dBm(Max)
Bluetooth Version	V 4.2
Modulation	BR ⊠GFSK, EDR ⊠π /4-DQPSK, ⊠8DPSK BLE □GFSK 1Mbps □GFSK 2Mbps
Number of channels	79
Hardware Version	1.0
Software Version	1.0
Antenna Designation	PCB Antenna(Comply with requirements of the FCC part 15.203)
Antenna Gain	0dBi
Power Supply	DC 3.7V by battery

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
TO D	0	2402MHZ
报 测	THE THE STATE OF T	2403MHZ
® Find Global Comm	40 jan 100 j	
	38	2440 MHZ
2402~2480MHZ	39	2441 MHZ
Marine Tours Commen	40	2442 MHZ
and Committee Co. All Manual Co.	in the second se	
Jo Ji	77	2479 MHZ
	78	2480 MHZ

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2.3. RECEIVER INPUT BANDWIDTH

The input bandwidth of the receiver is 1.3MHZ, In every connection one Bluetooth device is the master and the other one is slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection(e.g. single of multislot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings.

Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

2.4. EXAMPLE OF A HOPPING SEQUENCY IN DATA MODE

Example of a 79 hopping sequence in data mode: 40,21,44,23,42,53,46,55,48,33,52,35,50,65,54,67 56,37,60,39,58,69,62,71,64,25,68,27,66,57,70,59 72,29,76,31,74,61,78,63,01,41,05,43,03,73,07,75 09,45,13,47,11,77,15,00,64,49,66,53,68,02,70,06 01, 51, 03, 55, 05, 04

2.5. EQUALLY AVERAGE USE OF FREQUENCIES AND BEHAVIOUR

The generation of the hopping sequence in connection mode depends essentially on two input values:

- 1. LAP/UAP of the master of the connection.
- 2. Internal master clock

The LAP(lower address part) are the 24 LSB's of the 48 BD ADDRESS. The BD ADDRESS is an unambiguous number of every Bluetooth unit. The UAP(upper address part) are the 24MSB's of the 48BD ADDRESS

The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For ehavior zation with other units only offset are used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5us. The clock has a cycle of about one day(23h30). In most case it is implemented as 28 bit counter. For the deriving of the hopping sequence the entire. LAP(24 bits),4LSB's(4bits)(Input 1) and the 27MSB's of the clock(Input 2) are used. With this input values different mathematical procedures(permutations, additions, XOR-operations) are performed to generate te Sequence This will be done at the beginning of every new transmission.

Regarding short transmissions the Bluetooth system has the following ehavior:

The first connection between the two devices is established, a hopping sequence was generated. For Transmitting the wanted data the complete hopping sequence was not used. The connection ended. The second connection will be established. A new hopping sequence is generated. Due to the fact the Bluetooth clock has a different value, because the period between the two transmission is longer(and it Cannot be shorter) than the minimum resolution of the clock(312.5us). The hopping sequence will always Differ from the first one.

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2.6. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AHQL-MPD4LT** filing to comply with the FCC PART 15.247 requirements.

2.7. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.8. SPECIAL ACCESSORIES

Refer to section 5.2.

2.9. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

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3. MEASUREMENT UNCERTAINTY

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

- Uncertainty of Conducted Emission, Uc = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB
- Uncertainty of total RF power, conducted, Uc = ±0.8dB
- Uncertainty of spurious emissions, conducted, Uc = ±2.7dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %
- Uncertainty of Dwell Time: Uc = ±2 %
- Uncertainty of Frequency: Uc = ±2 %

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4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
Kampianes 1	Low channel GFSK
© 2	Middle channel GFSK
603	High channel GFSK
4	Low channel π/4-DQPSK
5	Middle channel π/4-DQPSK
6	High channel π/4-DQPSK
7	Low channel 8DPSK
8	Middle channel 8DPSK
9	High channel 8DPSK
10	Hopping mode GFSK
11	Hopping mode π/4-DQPSK
12	Hopping mode 8DPSK

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.



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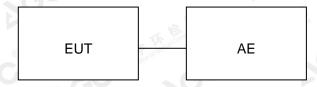
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Radiated Emission Configure:

EUT

Conducted Emission Configure:



5.2 EQUIPMENT USED IN TESTED SYSTEM

11170				
Item	Equipment	Model No.	ID or Specification	Remark
1	Bluetooth speaker	MPD4LT	2AHQL-MPD4LT	EUT
2	Battery	18650	DC 3.7V	AE
3	USB Cable	N/A	N/A	AE
4	AUX Line	N/A	N/A	AE
5	Adapter	AC-5C	N/A	AE

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5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(1)	Peak Output Power	Compliant
15.247 (a)(1)	20 dB Bandwidth	Compliant
15.247 (d)	Conducted Spurious Emission	Compliant
15.209	Radiated Emission	Compliant
15.247 (a)(1)(iii)	Number of Hopping Frequency	Compliant
15.247 (a)(1)(iii)	Time of Occupancy	Compliant
15.247 (a)(1)	Frequency Separation	Compliant
15.207 Conducted Emission		Compliant

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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd				
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China				
Designation Number	CN1259				
FCC Test Firm Registration Number	975832				
A2LA Cert. No.	5054.02				
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA				

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun. 12, 2018	Jun. 11, 2019
LISN	R&S	ESH2-Z5	100086	Aug. 28, 2018	Aug. 27, 2019

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun. 12, 2018	Jun. 11, 2019
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 20, 2018	Dec. 19, 2019
2.4GHz Fliter	Micro-tronics	087	N/A	Jun. 12, 2018	Jun. 11, 2019
Attenuator	Weinachel Corp	58-30-33	N/A	Jun. 12, 2018	Jun. 11, 2019
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 21, 2017	Sep. 20, 2020
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Jun. 14, 2018	Jun. 13, 2020
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May. 26, 2018	May. 25, 2020
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Oct. 25, 2018	Oct. 24, 2019
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 28, 2017	Sep. 27, 2019

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7. PEAK OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

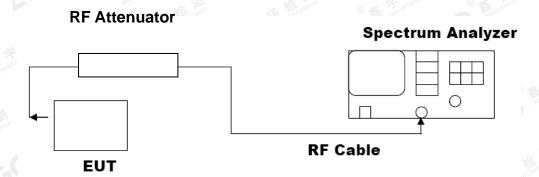
For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
- 3. RBW > 20 dB bandwidth of the emission being measured.
- 4. VBW ≥RBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

PEAK POWER TEST SETUP



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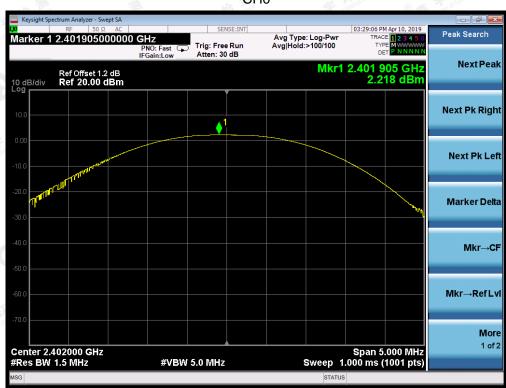


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7.3. LIMITS AND MEASUREMENT RESULT

PEAK OUTPUT POWER MEASUREMENT RESULT FOR GFSK MOUDULATION			
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	2.218	30	Pass
2.441	0.839	30	Pass
2.480	-0.603	30	Pass

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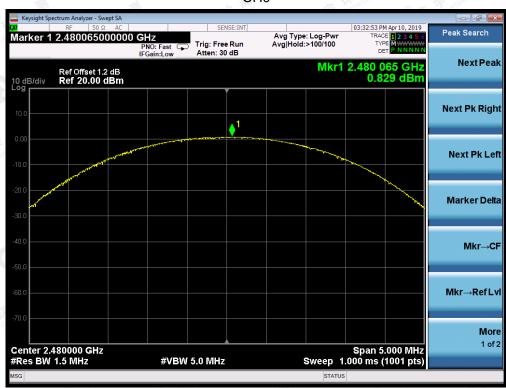
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	PEAK OUTPUT POWER MEASURI FOR II /4-DQPSK MODU		
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	0.829	30	Pass
2.441	2.232	30	Pass
2.480	3.576	30	Pass

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	PEAK OUTPUT POWER MEASUR FOR 8-DPSK MODULA		
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	4.523	30	Pass
2.441	3.211	30	Pass
2.480	1.792	30	Pass

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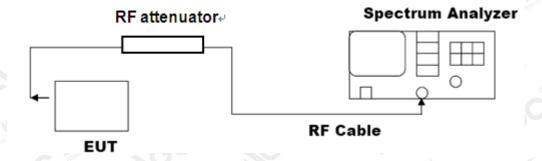
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8. 20DB BANDWIDTH

8.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel
 The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video
 bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



8.3. LIMITS AND MEASUREMENT RESULTS

MEASUREMENT RESULT FOR GFSK MOUDULATION			
A malia alala 1 insita	Measurement Result		
Applicable Limits	Test Da	ata (MHz)	Criteria
The State Countries of the State Countries	Low Channel	0.7669	PASS
N/A	Middle Channel	0.7690	PASS
Go So	High Channel	0.7634	PASS

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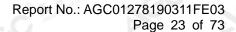
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



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TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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Tel: +86-755 2908 1955 Fax: +86-755 2600 8484 E-mail: agc@agc-cert.com @ 400 089 2118 Add: 2/F. , Building 2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Baoan District, Shenzhen, Guangdong China



MEASUREMENT RESULT FOR ∏ /4-DQPSK MODULATION				
Applicable Limits	Measurement Result			
	Test Data	a (MHz)	Criteria	
GO	Low Channel	1.119	PASS	
N/A	Middle Channel	1.118	PASS	
	High Channel	1.119	PASS	

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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MEASU	REMENT RESULT FOR 8-D	PSK MODULATION	
Amelia abla 1 imita	Measurement Result		
Applicable Limits	Test Data	(MHz)	Criteria
GU T	Low Channel	1.280	PASS
N/A	Middle Channel	1.281	PASS
	High Channel	1.274	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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9. CONDUCTED SPURIOUS EMISSION

9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the Middle and the bottom operation frequency individually.
- 3. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
 RBW = 100 kHz; VBW= 300 kHz; Sweep = auto; Detector function = peak.
- 4. Set SPA Trace 1 Max hold, then View.

9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2

9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6

9.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT			
	Measurement Result		
Applicable Limits	Test Data	Criteria	
In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS	
power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power. In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a))	At least -20dBc than the limit Specified on the TOP Channel	PASS	

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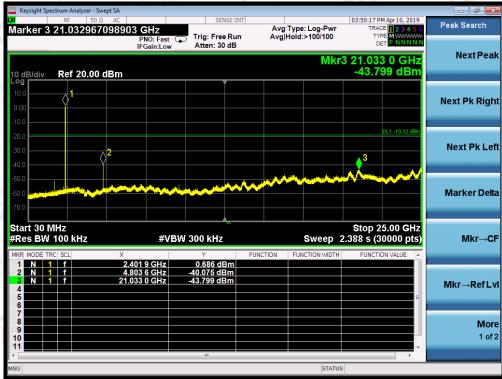
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TEST RESULT FOR ENTIRE FREQUENCY RANGE

TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE
OF GFSK MODULATION IN LOW CHANNEL

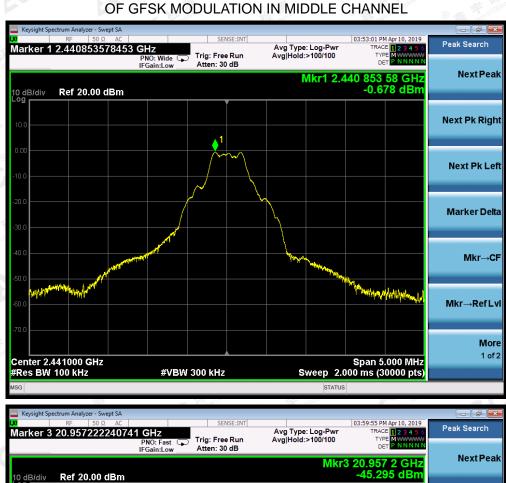




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TEST PLOT OF OUT OF BAND EMISSIONS OF GFSK MODULATION IN MIDDLE CHANNEL

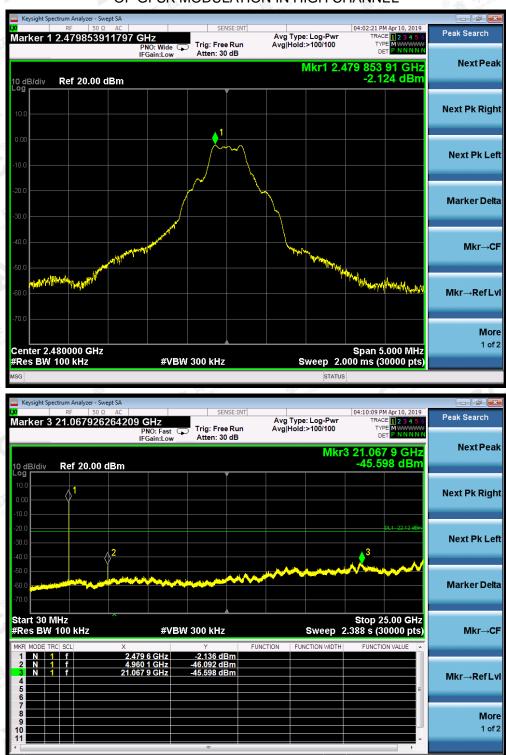




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TEST PLOT OF OUT OF BAND EMISSIONS OF GFSK MODULATION IN HIGH CHANNEL



Note: The peak emissions without marker on the above plots are fundamental wave and need not to compare with the limit. The GFSK modulation is the worst case and only those data recorded in the report.

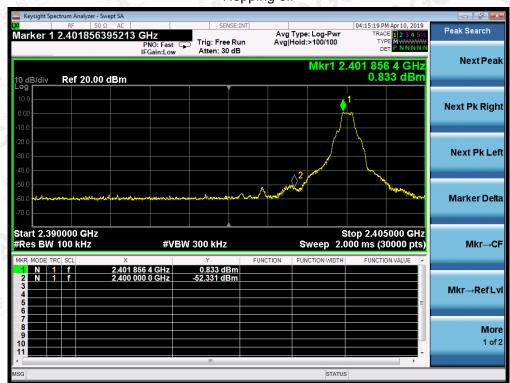
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TEST RESULT FOR BAND EDGE

GFSK MODULATION IN LOW CHANNEL Hopping off



Hopping on

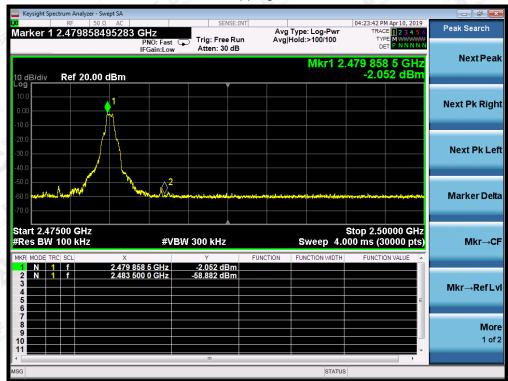


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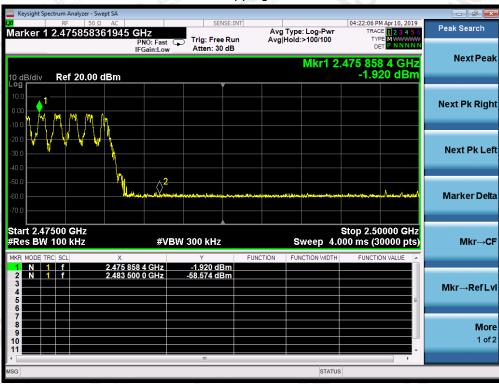
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GFSK MODULATION IN HIGH CHANNEL Hopping off



Hopping on



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π /4-DQPSK MODULATION IN LOW CHANNEL Hopping off



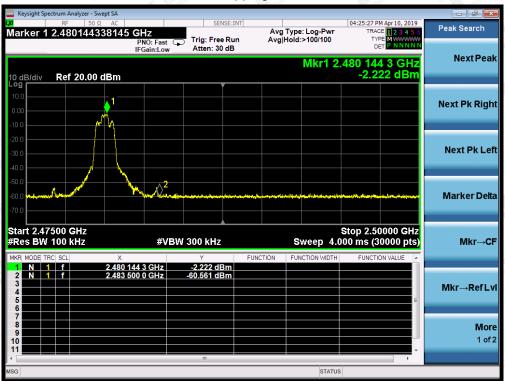
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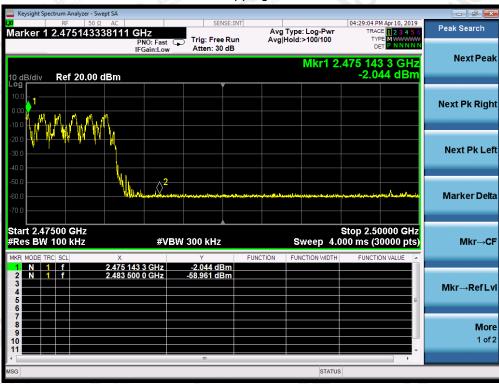
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π /4-DQPSK MODULATION IN HIGH CHANNEL Hopping off



Hopping on



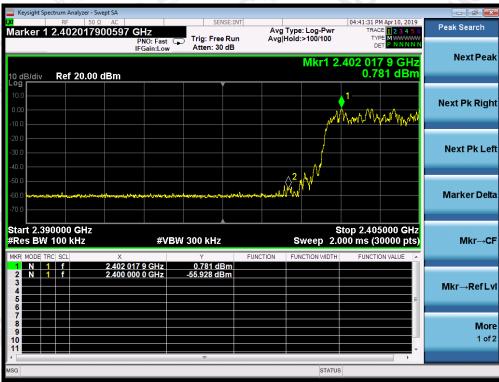
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8-DPSK MODULATION IN LOW CHANNEL Hopping off



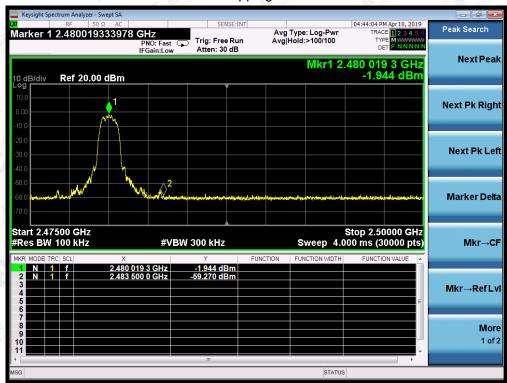
Hopping on



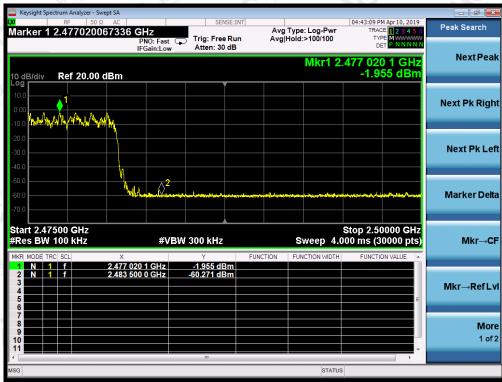
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8-DPSK MODULATION IN HIGH CHANNEL Hopping off



Hopping on



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10. RADIATED EMISSION

10.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

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The following table is the setting of spectrum analyzer and receiver.

	Spectrum Parameter	Setting		
Compliance	Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP		
(C) (Market)	Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP		
GO "	Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP		
Start ~Stop Frequency		1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average		

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

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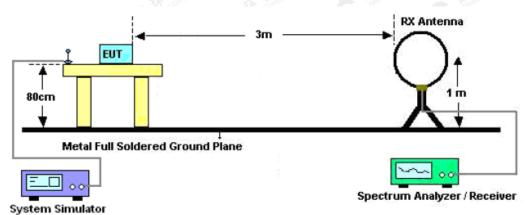
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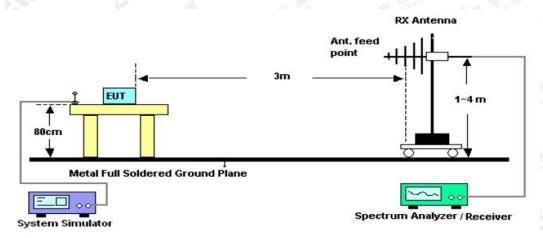
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10.2. TEST SETUP

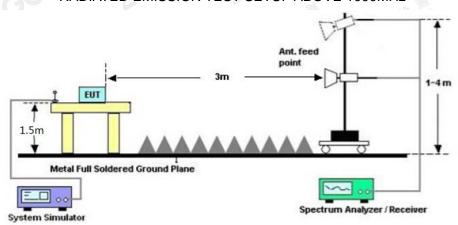
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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10.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3 C Thursday
216~960	200	3
Above 960	500	3

Note: All modes were tested For restricted band radiated emission,

the test records reported below are the worst result compared to other modes.

10.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

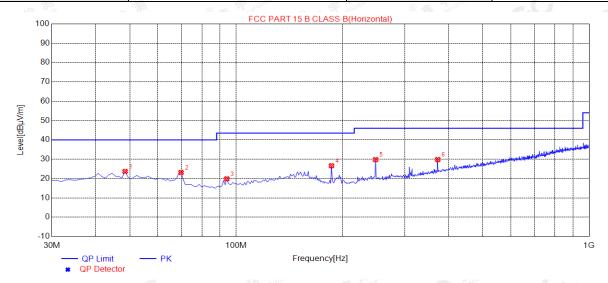
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RADIATED EMISSION BELOW 1GHZ

EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 4	Antenna	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.4300	23.66	14.71	40.00	16.34	200	215	Horizontal
2	69.7700	23.14	12.26	40.00	16.86	200	6	Horizontal
3	94.0200	19.85	10.71	43.50	23.65	150	47	Horizontal
4	186.1700	26.62	12.69	43.50	16.88	150	177	Horizontal
5	248.2500	29.79	14.72	46.00	16.21	100	197	Horizontal
6	372.4100	29.79	18.70	46.00	16.21	100	23	Horizontal

RESULT. PASS

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Bluetooth speaker

25°C

960hPa

Mode 4

EUT

Temperature

Pressure

Test Mode

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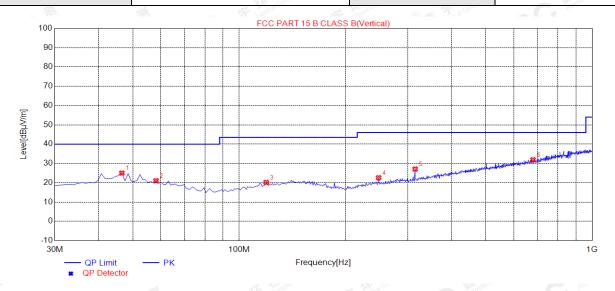
Normal Voltage

Vertical

TK KEL AM	Model Name	MPD4LT
allon of Global	Relative Humidity	55.4%

Test Voltage

Antenna



(2)	NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
	1	46.4900	25.00	14.77	40.00	15.00	100	1	Vertical
1	2	58.1300	21.03	14.05	40.00	18.97	100	275	Vertical
	3	119.2400	20.13	13.39	43.50	23.37	200	354	Vertical
βÜ	4	248.2500	22.59	14.72	46.00	23.41	150	92	Vertical
lan.	5	315.1800	27.07	16.48	46.00	18.93	150	2	Vertical
	6	679.9000	31.91	25.61	46.00	14.09	150	252	Vertical

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. All test modes had been pre-tested. The mode 4 is the worst case and recorded in the report.

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RADIATED EMISSION ABOVE 1GHZ

EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	\/alua Tima
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4804.022	51.71	0.08	51.79	74.00	-22.21	peak
4804.022	48.03	0.08	48.11	54.00	-5.89	AVG
7206.033	42.48	2.21	44.69	74.00	-29.31	peak
7206.033	38.15	2.21	40.36	54.00	-13.64	AVG
C Marie Status	-C	CO MILES			11111	THE SALE
emark:			-ail	-IK	Kil nompliance	That Complies
actor = Anter	nna Factor + Cabl	e Loss – Pre-	amplifier.	a Figure	® 45.	on of Gio

EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor 🦠 🍇	Emission Level	Limits	Margin	Value Trac
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4804.022	50.13	0.08	50.21	74.00	-23.79	peak
4804.022	45.49	0.08	45.57	54.00	-8.43	AVG
7206.033	40.01	2.21	42.22	74.00	-31.78	peak
7206.033	38.16	2.21	40.37	54.00	-13.63	AVG
-IIII	The Compilar	* Clopal Coli	® Alation of C	Attestation		
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EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4882.022	50.44	0.14	50.58	74.00	-23.42	peak
4882.022	48.49	0.14	48.63	54.00	-5.37	AVG
7323.033	40.97	2.36	43.33	74.00	-30.67	peak
7323.033	39.06	2.36	41.42	54.00	-12.58	AVG
私	Compilar TK KE up	ience II	I Compile	stations	Altesto	
® # Fnof Glo	Of Global	® A splion of G				
Remark:	Allestano	- C Alles				MITTE
actor = Anter	nna Factor + Cable	Loss – Pre-a	amplifier.		-1100	Kil mpilance

EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4882.022	51.30	0.14	51.44	74.00	-22.56	peak
4882.022	48.19	0.14	48.33	54.00	-5.67	AVG
7323.033	46.86	2.36	49.22	74.00	-24.78	peak
7323.033	44.26	2.36	46.62	54.00	-7.38	AVG
il plance	Global B	The station of Grant	Alles			
3,011.	lestation	Alles				
Remark:				- All	151	lance Min
actor = Anter	nna Factor + Cab	le Loss – Pre-	amplifier.	TK Kil Compilance	The Comp	A STATE OF THE STA

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EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4960.022	50.20	0.22	50.42	74.00	-23.58	peak
4960.022	46.35	0.22	46.57	54.00	-7.43	AVG
7440.033	45.47	2.64	48.11	74.00	-25.90	peak
7440.033	42.52	2.64	45.16	54.00	-8.84	AVG
私	Compliant TK Wind	iance In	Compile 8	Station	Attestan	
(8) Figure 1 an of Glot	of Global	® # Jalion of Gil			7	
Remark:	Alle status	- G Alles			-ml	TILL:
actor = Anter	na Factor + Cable	Loss – Pre-a	mplifier.	3	125 July	The Indiance

EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tres
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4960.022	50.96	0.22	51.18	74.00	-22.57	peak
4960.022	47.92	0.22	48.14	54.00	-21.57	AVG
7440.033	44.64	2.64	47.28	74.00	-20.57	peak
7440.033	42.54	2.64	45.18	54.00	-19.57	AVG
	Mo This	The Management	Global J	® Ex Son	Clon	
	EN Comp	Global	Constitution and a station of the st	Attesto		

RESULT: PASS

Note:

Other emissions from 1G to 25 GHz are considered as ambient noise. No recording in the test report. Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

All test modes had been tested. The GFSK modulation is the worst case and recorded in the report.

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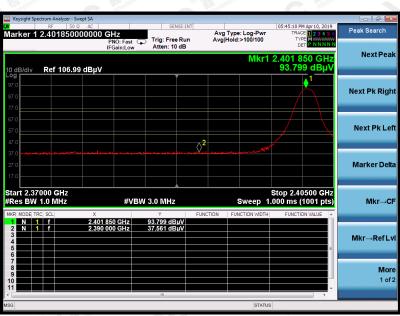


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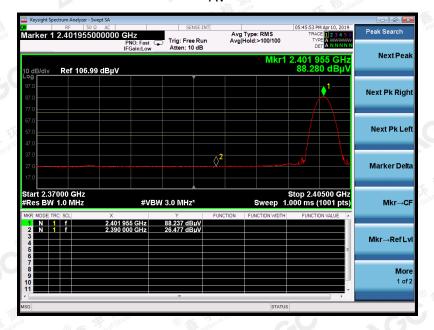
TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

PK



ΑV



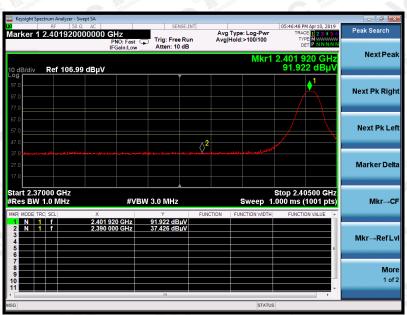
RESULT: PASS

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EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

PK



ΑV



RESULT: PASS

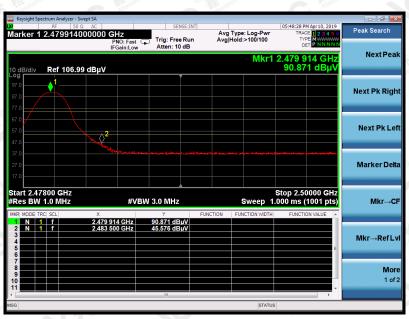
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EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

PK



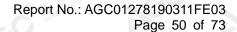
ΑV



RESULT: PASS

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EUT	Bluetooth speaker	Model Name	MPD4LT
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

PK



ΑV



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