



ACCURATE TECHNOLOGY CO., LTD.

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Job No.: LGW2018 #2461

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2441MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Horizontal

Power Source: DC 3.7V

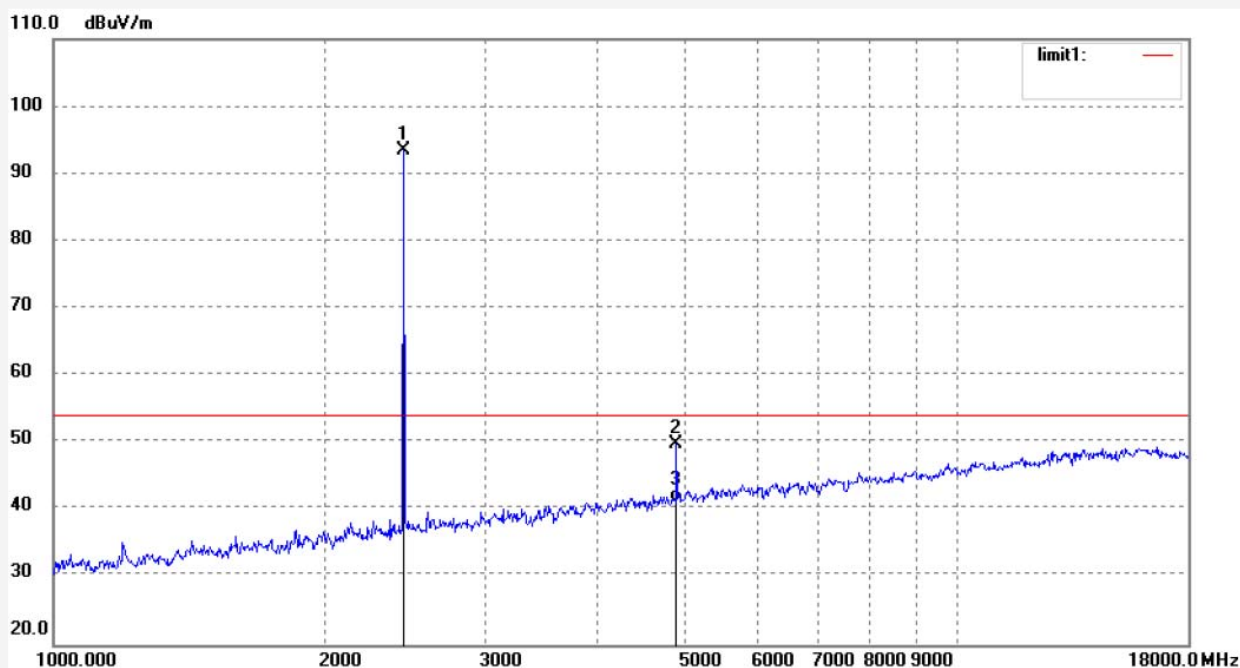
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	92.33	1.06	93.39	/	/	peak			
2	4882.028	41.61	8.11	49.72	74.00	-24.28	peak			
3	4882.028	33.15	8.11	41.26	54.00	-12.74	AVG			

Job No.: LGW2018 #2460

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2441MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Vertical

Power Source: DC 3.7V

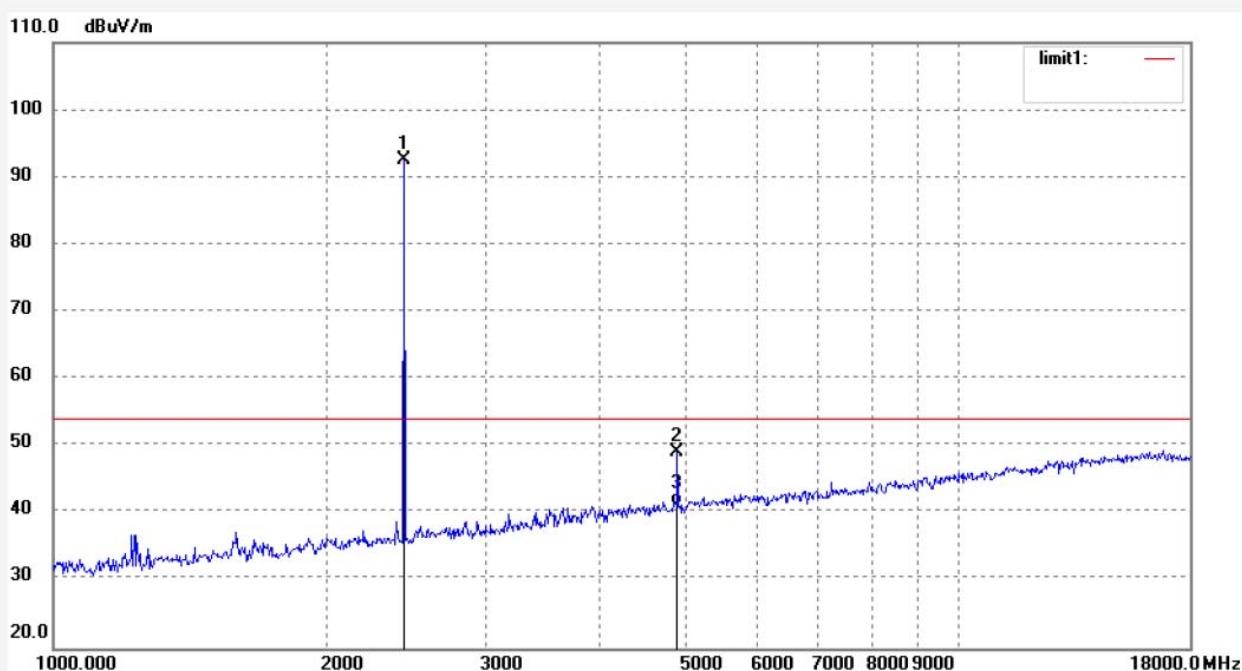
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	91.40	1.06	92.46	/	/	peak			
2	4882.026	40.96	8.11	49.07	74.00	-24.93	peak			
3	4882.026	33.14	8.11	41.25	54.00	-12.75	AVG			

Job No.: LGW2018 #2462

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2480MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Horizontal

Power Source: DC 3.7V

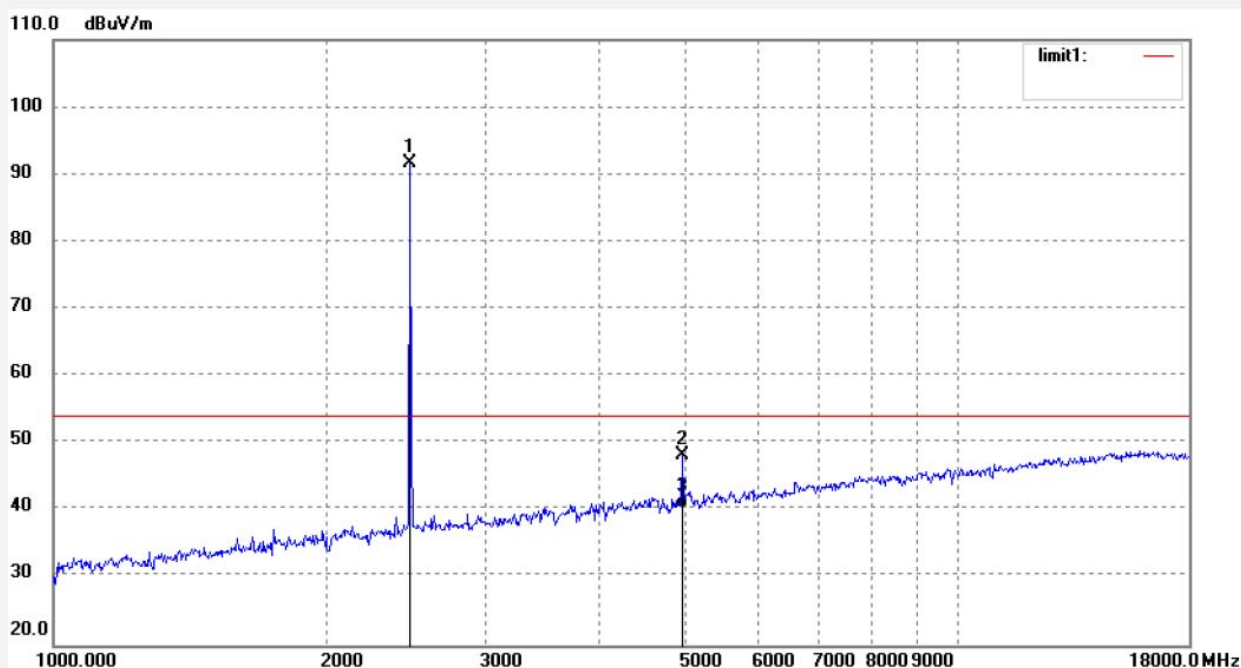
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	90.59	1.10	91.69	/	/	peak			
2	4960.030	39.64	8.60	48.24	74.00	-25.76	peak			
3	4960.030	31.75	8.60	40.35	54.00	-13.65	AVG			

Job No.: LGW2018 #2463

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2480MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Vertical

Power Source: DC 3.7V

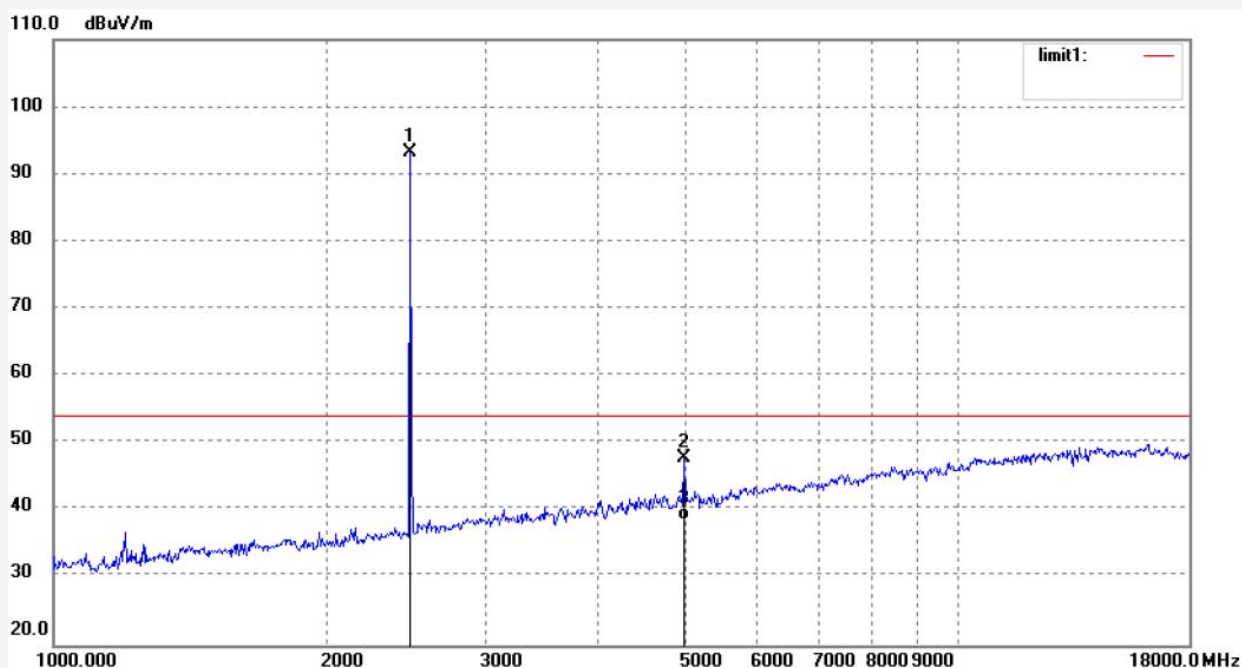
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	92.11	1.10	93.21	/	/	peak			
2	4960.029	39.18	8.60	47.78	74.00	-26.22	peak			
3	4960.029	29.85	8.60	38.45	54.00	-15.55	AVG			

18GHz-26.5GHz test data



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Job No.: LGW2018 #2466

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2402MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Horizontal

Power Source: DC 3.7V

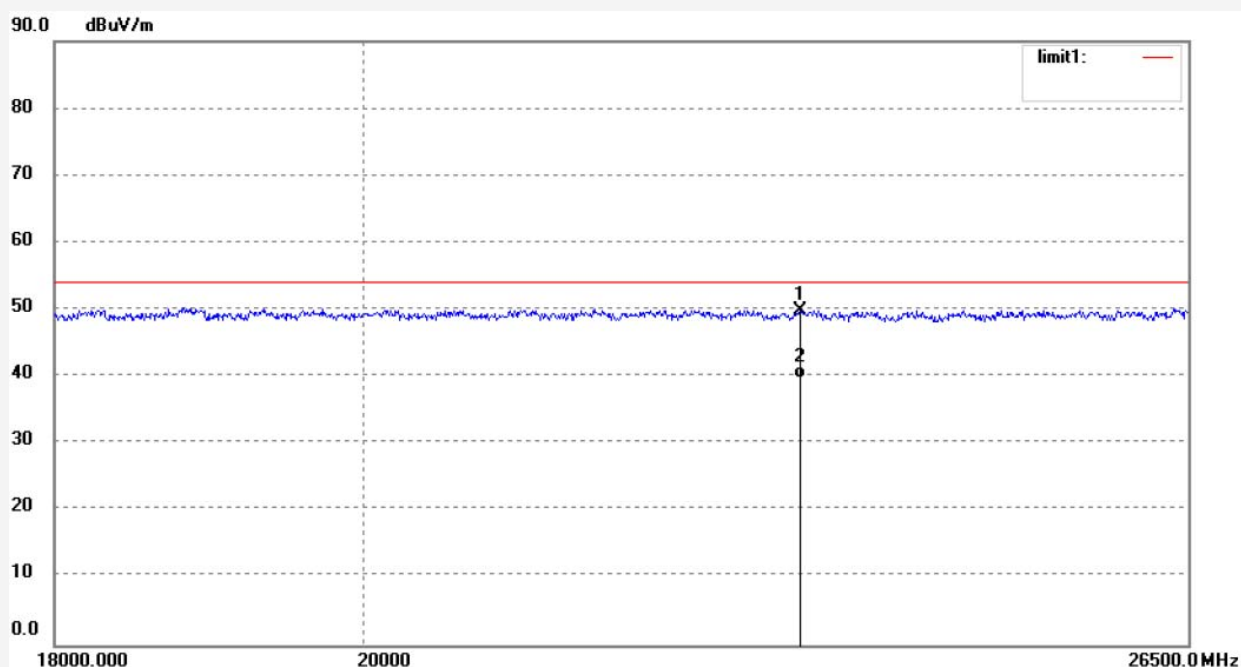
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	23216.619	10.13	39.78	49.91	74.00	-24.09	peak			
2	23216.619	-0.10	39.78	39.68	54.00	-14.32	AVG			

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Job No.: LGW2018 #2467

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2402MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Vertical

Power Source: DC 3.7V

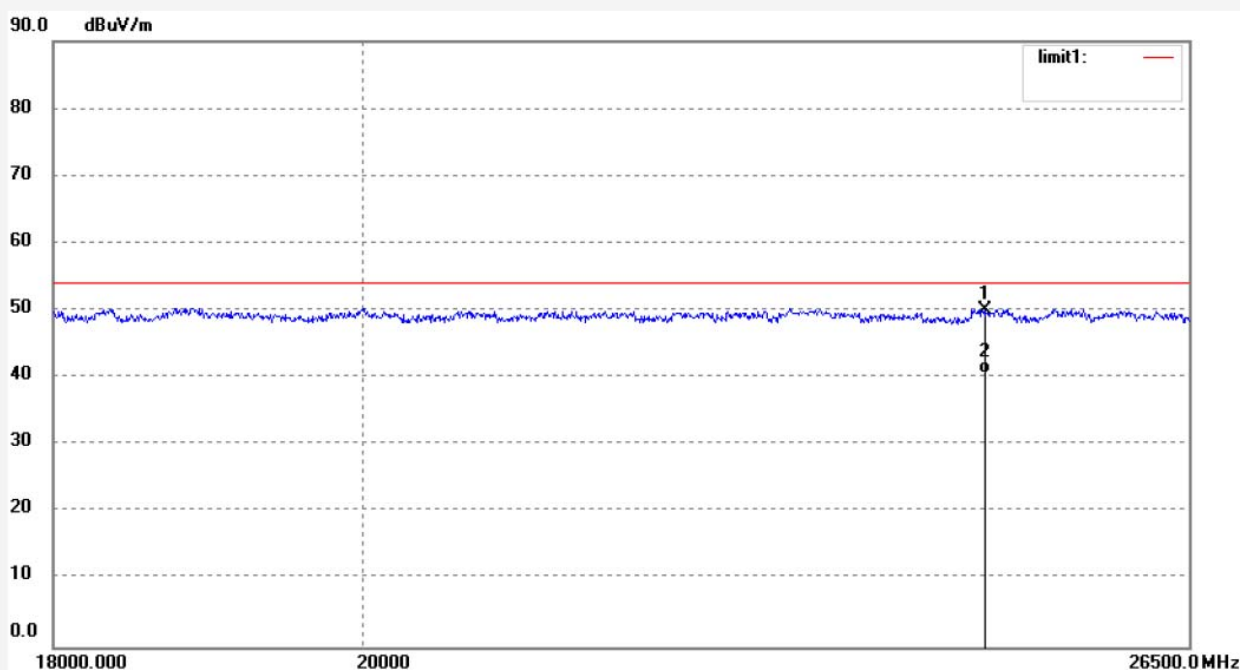
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	24717.849	9.47	40.60	50.07	74.00	-23.93	peak			
2	24717.849	-0.03	40.60	40.57	54.00	-13.43	AVG			

Job No.: LGW2018 #2469

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2441MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Horizontal

Power Source: DC 3.7V

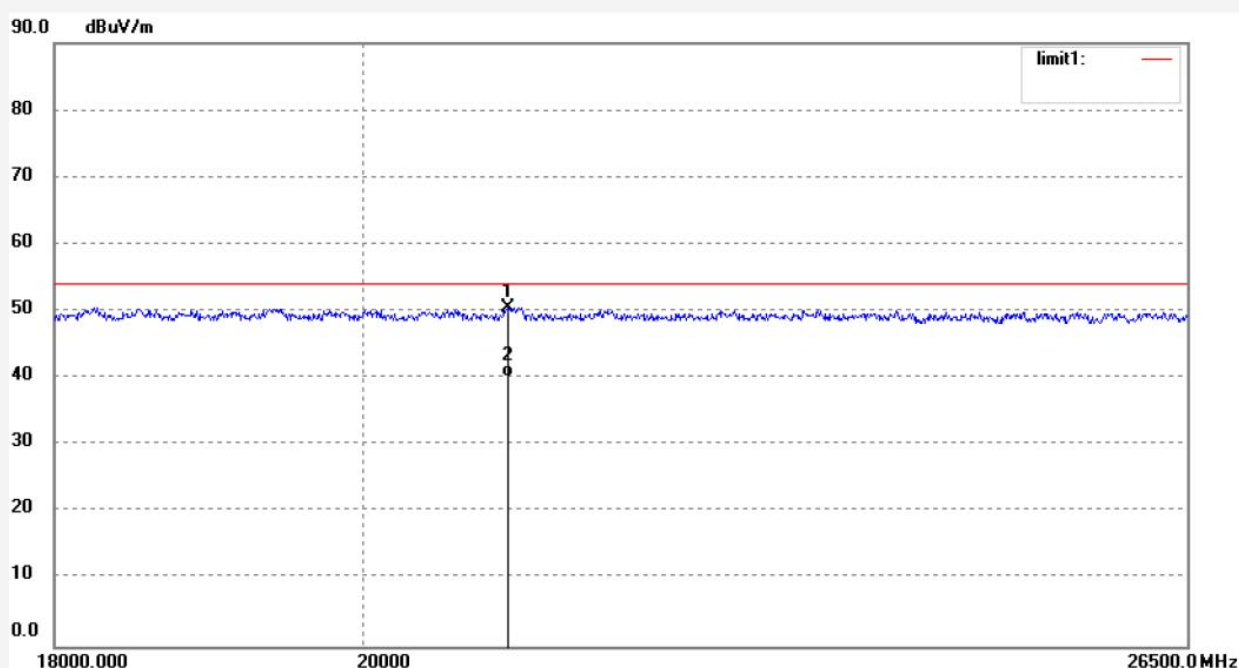
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21011.732	12.11	38.42	50.53	74.00	-23.47	peak			
2	21011.732	1.83	38.42	40.25	54.00	-13.75	AVG			

Job No.: LGW2018 #2468

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2441MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Vertical

Power Source: DC 3.7V

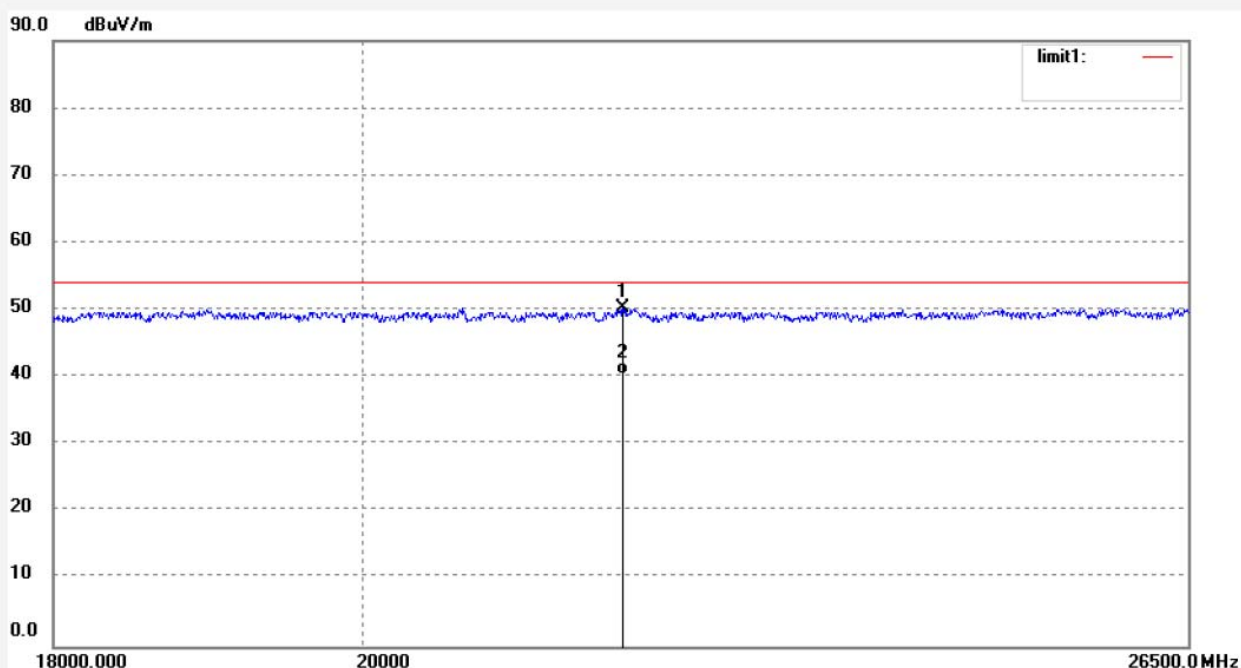
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21857.231	10.96	39.24	50.20	74.00	-23.80	peak			
2	21857.231	1.11	39.24	40.35	54.00	-13.65	AVG			

Job No.: LGW2018 #2470

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2480MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Horizontal

Power Source: DC 3.7V

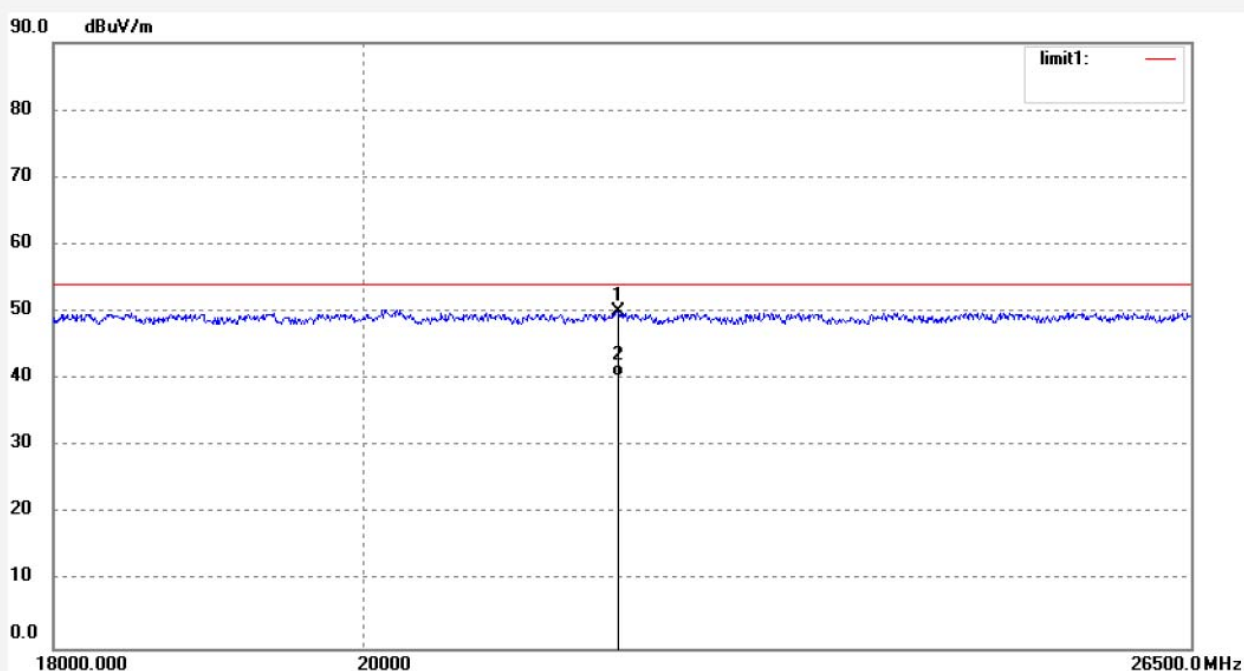
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21815.002	11.09	39.08	50.17	74.00	-23.83	peak			
2	21815.002	1.28	39.08	40.36	54.00	-13.64	AVG			

Job No.: LGW2018 #2471

Standard: FCC 15.247 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2480MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Vertical

Power Source: DC 3.7V

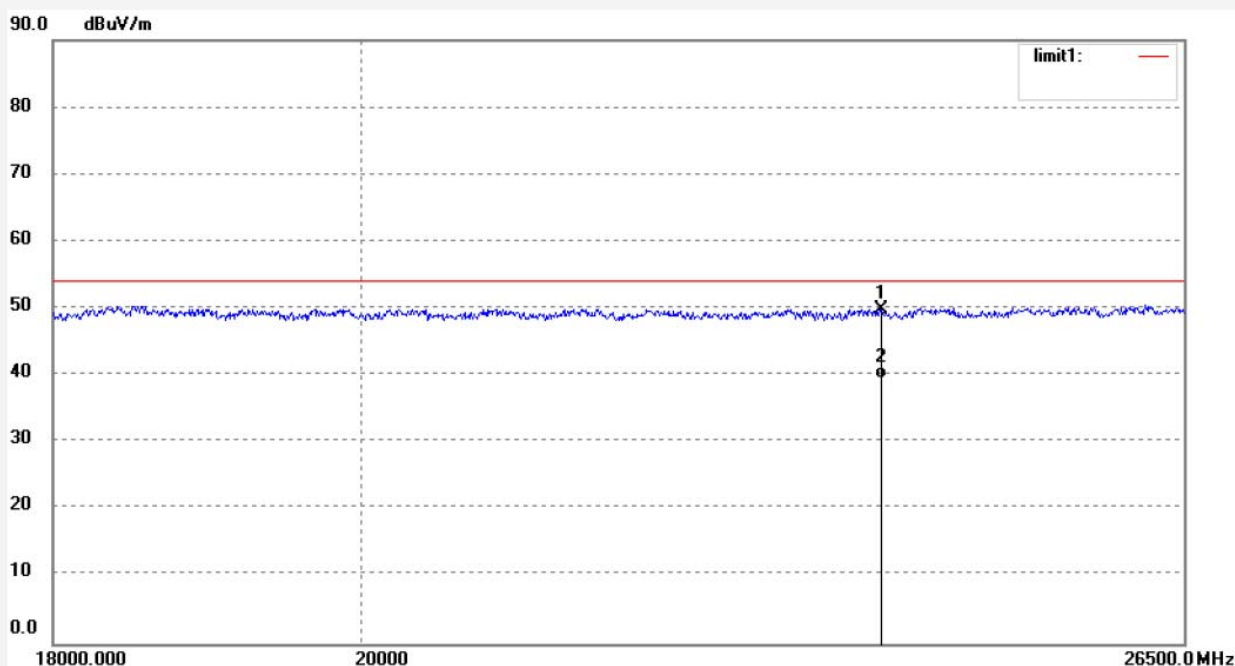
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

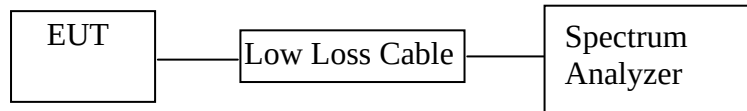
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	23890.708	10.10	39.72	49.82	74.00	-24.18	peak			
2	23890.708	-0.18	39.72	39.54	54.00	-14.46	AVG			

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Active Noise Cancelling Bluetooth Stereo Headphones)

11.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

11.5. Test Procedure

11.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

11.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3. The band edges was measured and recorded.

11.6. Test Result

Non-hopping mode

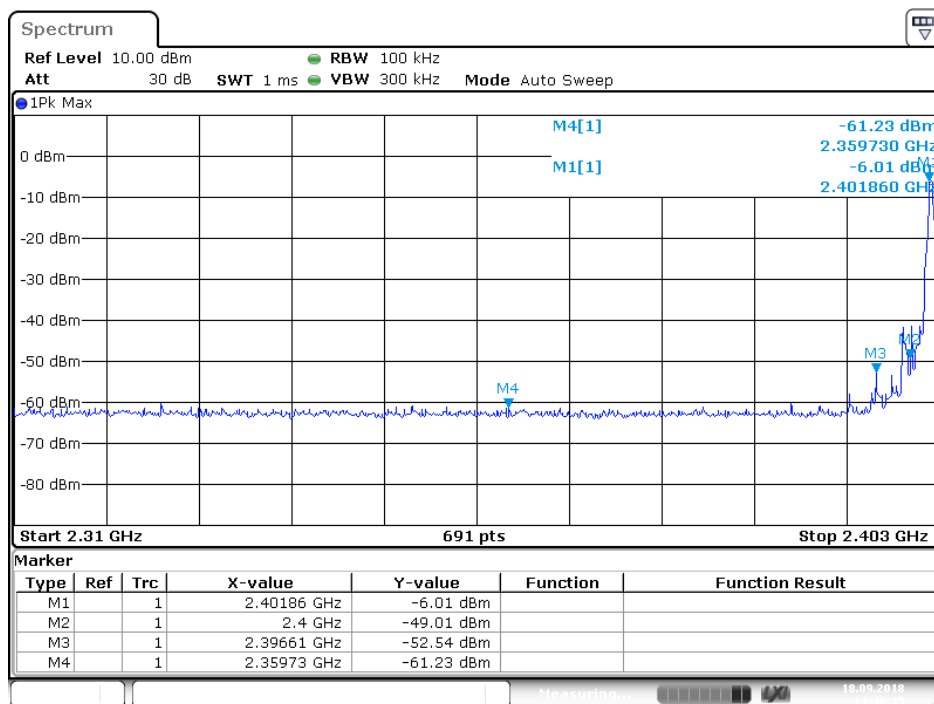
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
BDR mode		
2400.0	43.00	> 20dBc
2484.065	41.96	> 20dBc
EDR mode		
2400.0	52.35	> 20dBc
2484.097	54.46	> 20dBc

Hopping mode

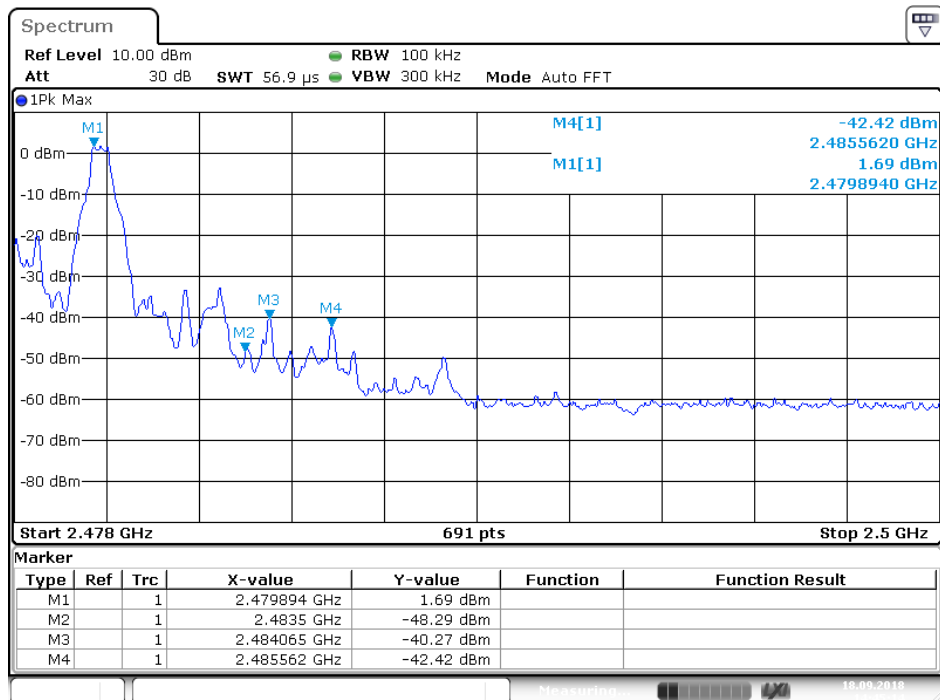
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
BDR mode		
2400.0	40.15	> 20dBc
2484.073	42.81	> 20dBc
EDR mode		
2400.0	42.63	> 20dBc
2484.097	54.46	> 20dBc

Non-hopping mode

BDR mode

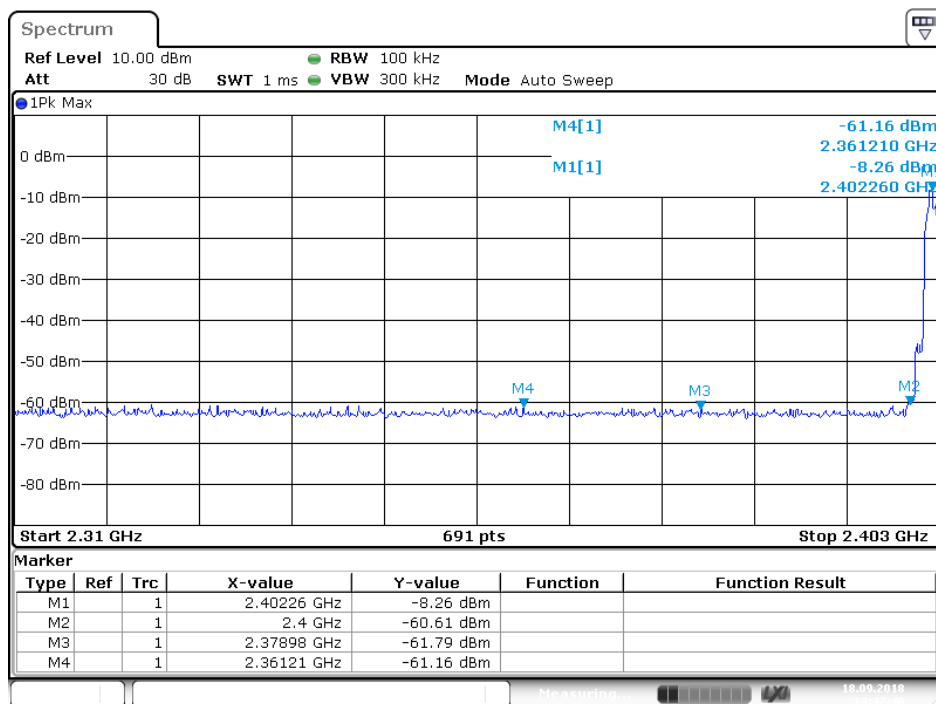


Date: 18.SEP.2018 14:46:15

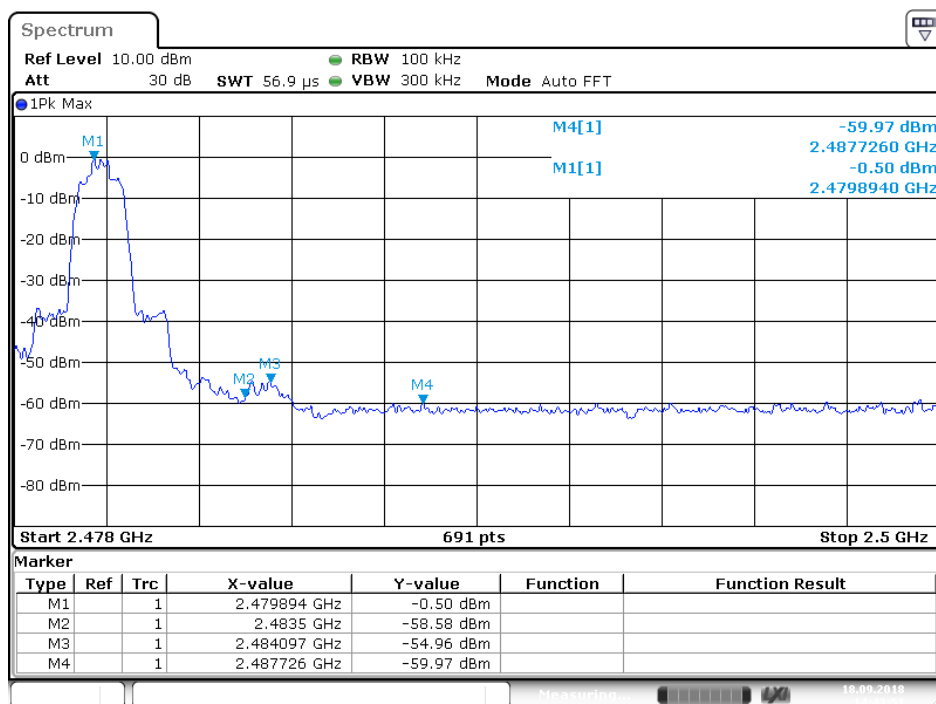


Date: 18.SEP.2018 14:45:15

EDR mode



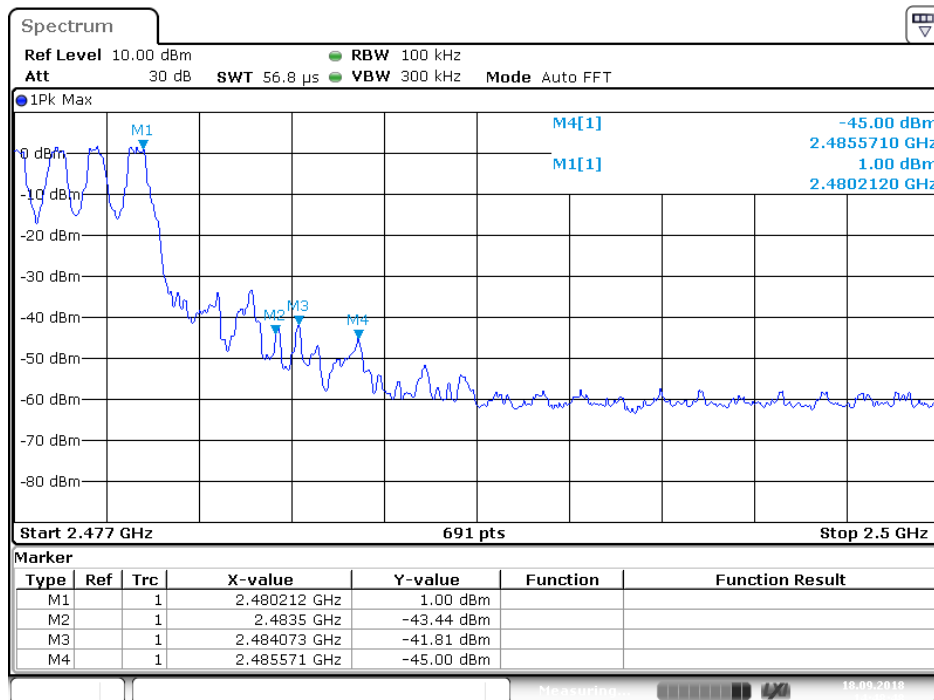
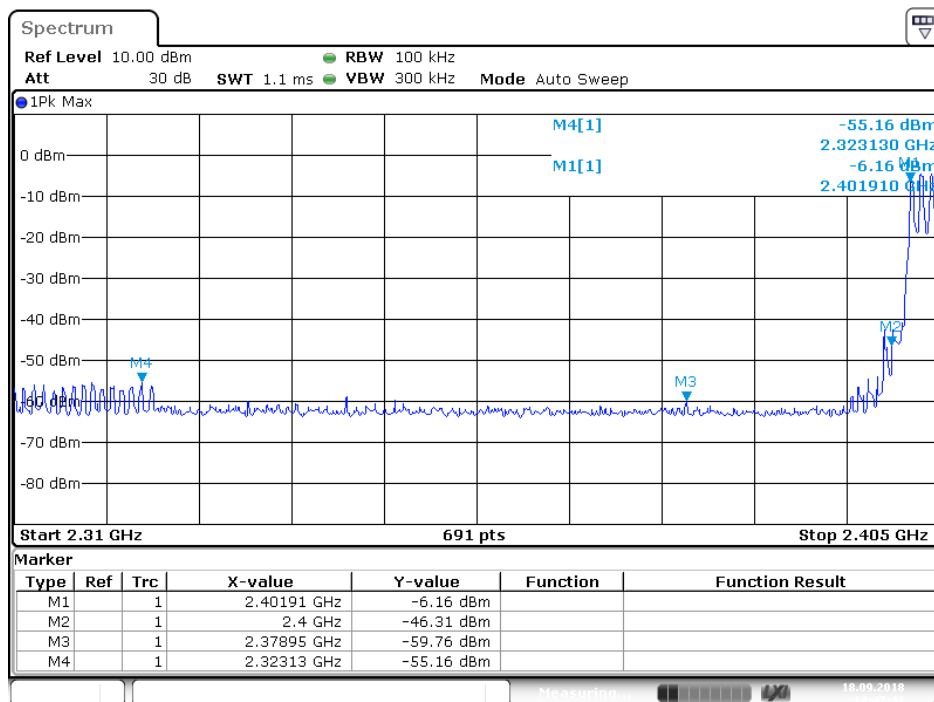
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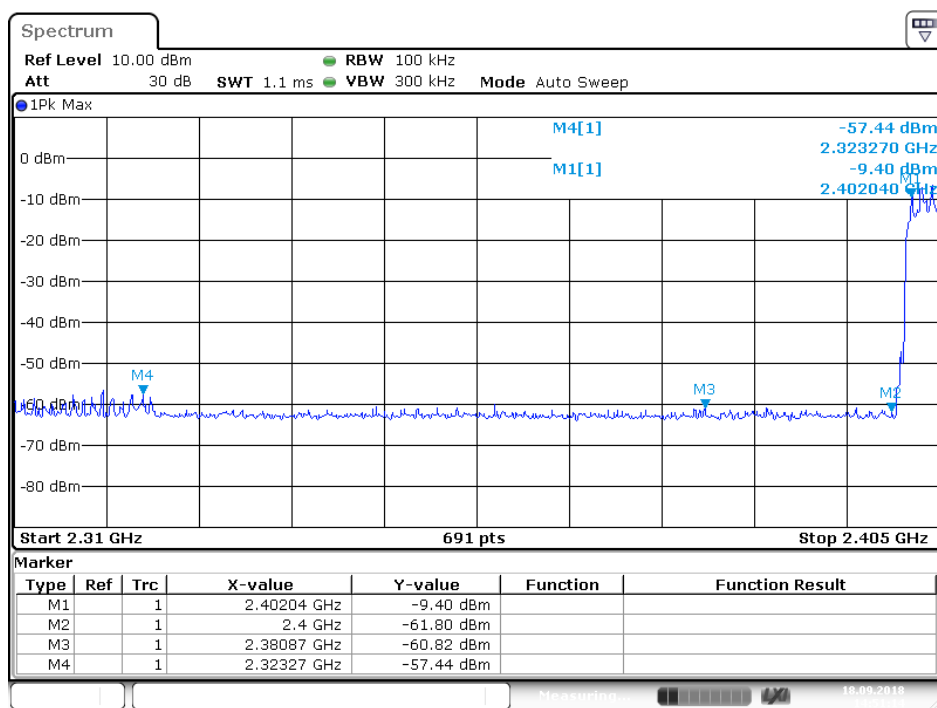
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hopping mode

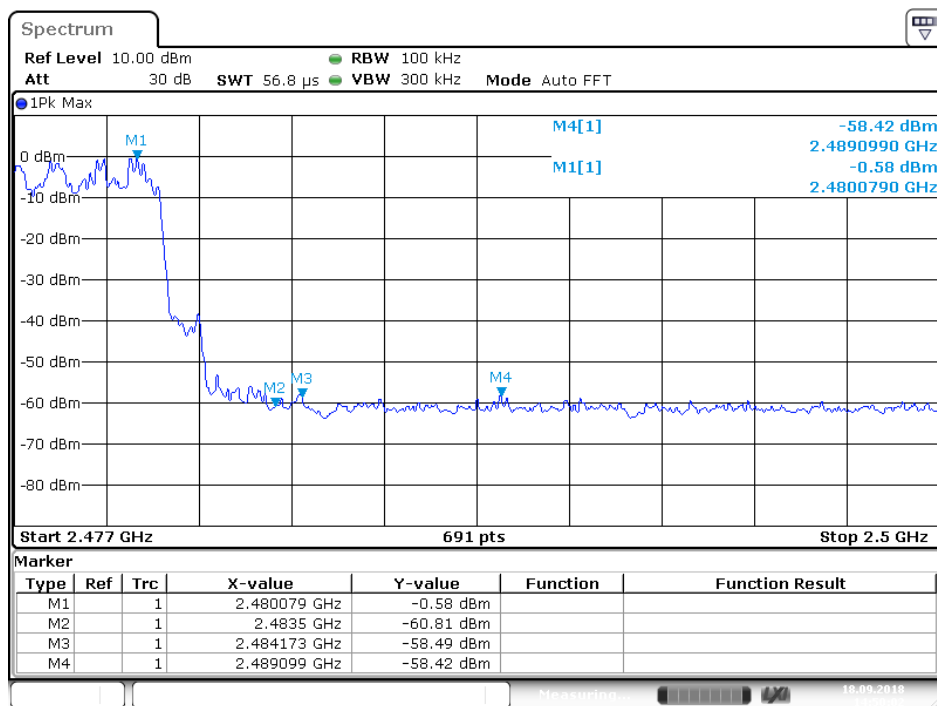
BDR mode



EDR mode



Date: 18.SEP.2018 14:51:15



Date: 18.SEP.2018 14:50:03

Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

3. Display the measurement of peak values.

Test Procedure:

The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

Let the EUT work in TX (Hopping off, Hopping on) modes measure it.

We select 2402MHz, 2480MHz TX frequency to transmit(Hopping off mode).

We select 2402-2480MHz TX frequency to transmit(Hopping on mode).

During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
- 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 3.All modes of operation were investigated and the worst-case emissions are reported.

Non-hopping mode



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Job No.: LGW2018 #2458

Standard: FCC (Band Edge)

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2402MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Horizontal

Power Source: DC 3.7V

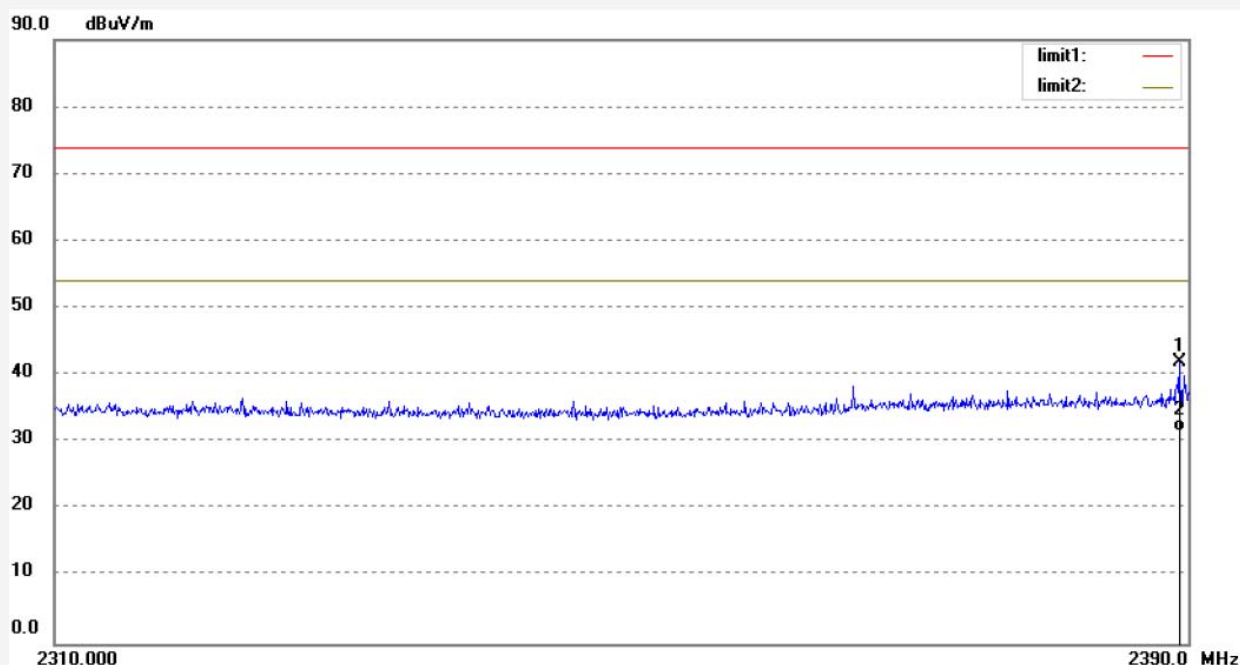
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2389.360	41.16	0.79	41.95	74.00	-32.05	peak			
2	2389.360	30.75	0.79	31.54	54.00	-22.46	AVG			

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Job No.: LGW2018 #2459

Standard: FCC (Band Edge)

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2402MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Vertical

Power Source: DC 3.7V

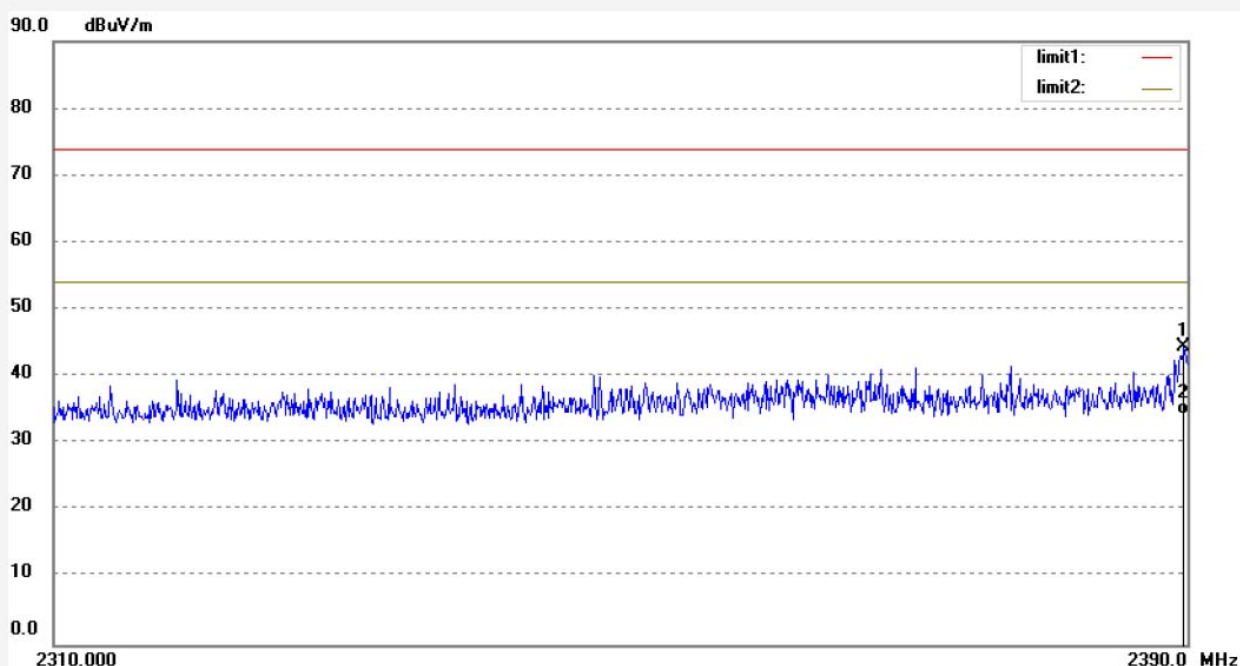
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2389.760	43.72	0.79	44.51	74.00	-29.49	peak			
2	2389.760	33.45	0.79	34.24	54.00	-19.76	AVG			



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Job No.: LGW2018 #2465

Standard: FCC (Band Edge)

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2480MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Horizontal

Power Source: DC 3.7V

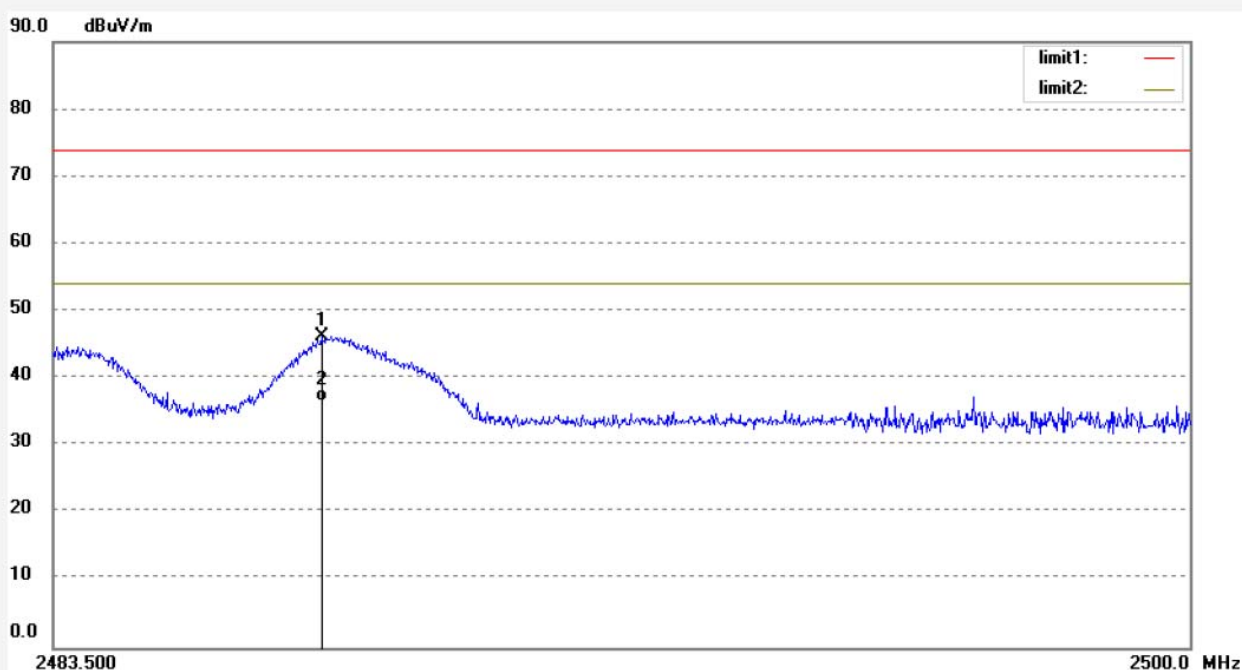
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2487.394	45.10	1.10	46.20	74.00	-27.80	peak			
2	2487.394	35.45	1.10	36.55	54.00	-17.45	AVG			

Job No.: LGW2018 #2464

Standard: FCC (Band Edge)

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Active Noise Cancelling Bluetooth Stereo Headphones

Mode: TX 2480MHz

Model: W828NB

Applicant: Edifier International Limited

Polarization: Vertical

Power Source: DC 3.7V

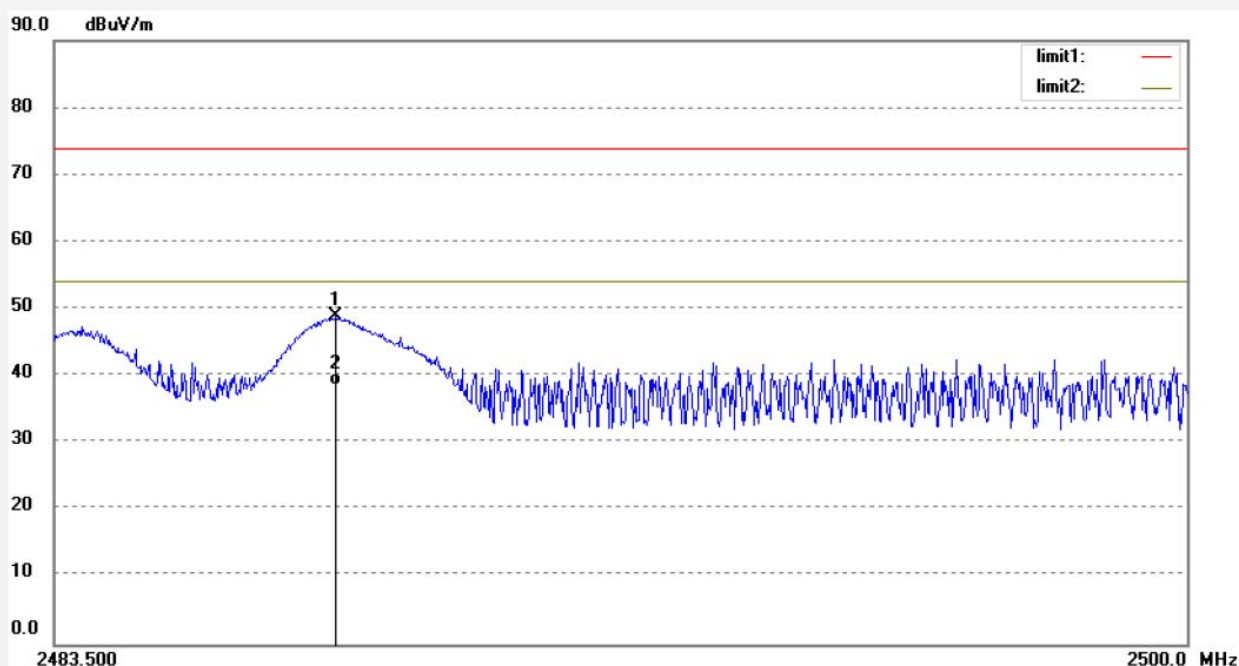
Date: 2018/09/07

Time:

Engineer Signature: WADE

Distance: 3m

Note:

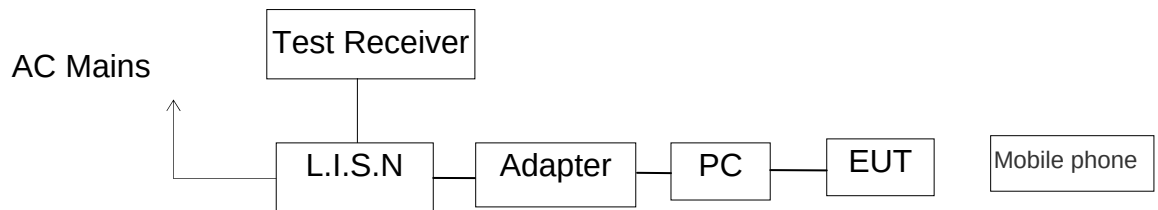


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2487.608	47.75	1.10	48.85	74.00	-25.15	peak			
2	2487.608	37.46	1.10	38.56	54.00	-15.44	AVG			

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup



(EUT: Active Noise Cancelling Bluetooth Stereo Headphones)

12.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μ V)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.
 NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

12.3.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 12.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in test mode and measure it.

12.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

12.6.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	10.6	25.3	17.0	59.0	49.0	33.4	31.7	Pass

Frequency(MHz) = Emission frequency in MHz

Transducer value(dB) = Insertion loss of LISN + Cable Loss

Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value

Limit (dBμV) = Limit stated in standard

Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:

Margin = Limit (dBμV) - Level (dBμV)

12.7.Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

Emissions attenuated more than 20 dB below the permissible value are not reported.

All data was recorded in the Quasi-peak and average detection mode.

Test mode : Charging&BT Operation(AC 120V/60Hz)								
MEASUREMENT RESULT: "TUV-0910-04_fin"								
9/10/2018								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.150000	52.10	10.5	66	13.9	QP	L1	GND	
2.620000	32.20	11.0	56	23.8	QP	L1	GND	
27.745000	26.50	11.5	60	33.5	QP	L1	GND	
MEASUREMENT RESULT: "TUV-0910-04_fin2"								
9/10/2018								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.495000	34.90	10.7	46	11.2	AV	L1	GND	
1.870000	29.10	11.0	46	16.9	AV	L1	GND	
23.995000	27.90	11.5	50	22.1	AV	L1	GND	
MEASUREMENT RESULT: "TUV-0910-03_fin"								
9/10/2018								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.155000	51.00	10.5	66	14.7	QP	N	GND	
2.660000	32.70	11.0	56	23.3	QP	N	GND	
27.670000	27.50	11.5	60	32.5	QP	N	GND	
MEASUREMENT RESULT: "TUV-0910-03_fin2"								
9/10/2018								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.495000	34.60	10.7	46	11.5	AV	N	GND	
2.260000	29.60	11.0	46	16.4	AV	N	GND	
23.995000	27.90	11.5	50	22.1	AV	N	GND	

The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO., LTD

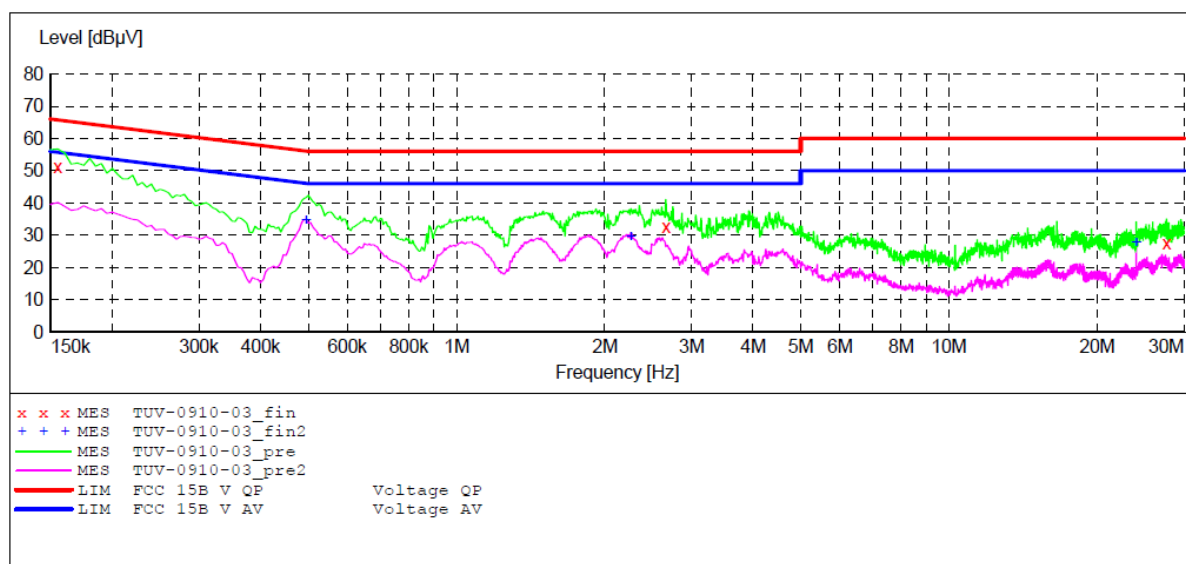
CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Active Noise Cancelling Bluetooth Stereo Headphones M/N:W828NB
 Applicant: Edifier International Limited
 Operating Condition: Charging&BT operation
 Test Site: 1#Shielding Room
 Operator: WADE
 Test Specification: N 120V/60Hz
 Comment: Mains port
 Start of Test: 9/10/2018 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	Average			
			QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
			Average			



MEASUREMENT RESULT: "TUV-0910-03_fin"

9/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.155000	51.00	10.5	66	14.7	QP	N	GND
2.660000	32.70	11.0	56	23.3	QP	N	GND
27.670000	27.50	11.5	60	32.5	QP	N	GND

MEASUREMENT RESULT: "TUV-0910-03_fin2"

9/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.495000	34.60	10.7	46	11.5	AV	N	GND
2.260000	29.60	11.0	46	16.4	AV	N	GND
23.995000	27.90	11.5	50	22.1	AV	N	GND

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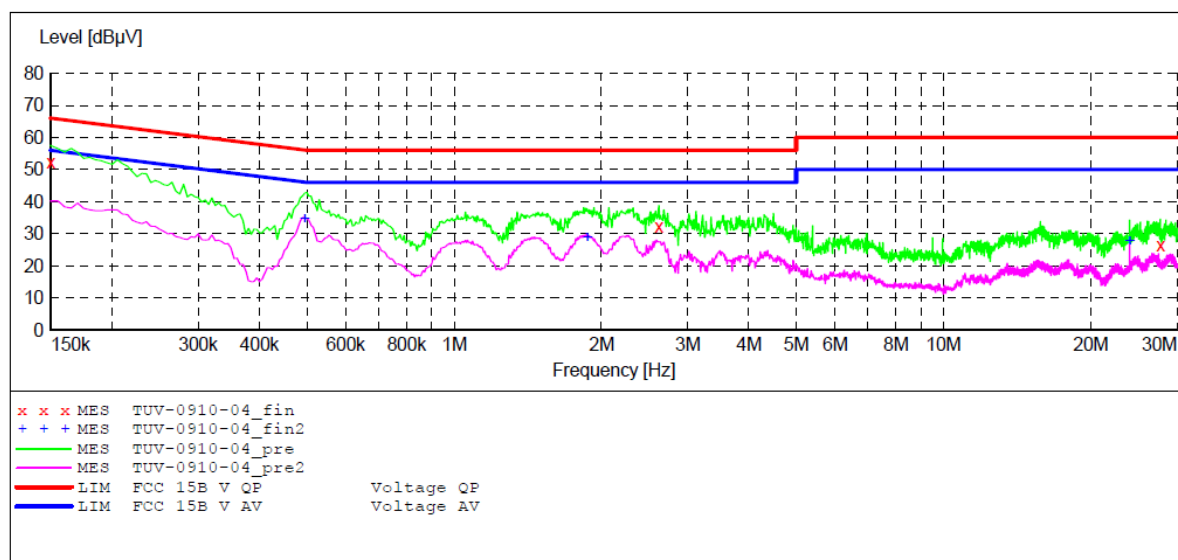
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Active Noise Cancelling Bluetooth Stereo Headphones M/N:W828NB
 Applicant: Edifier International Limited
 Operating Condition: Charging&BT operation
 Test Site: 1#Shielding Room
 Operator: WADE
 Test Specification: L 120V/60Hz
 Comment: Mains port
 Start of Test: 9/10/2018 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "TUV-0910-04_fin"

9/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	52.10	10.5	66	13.9	QP	L1	GND
2.620000	32.20	11.0	56	23.8	QP	L1	GND
27.745000	26.50	11.5	60	33.5	QP	L1	GND

MEASUREMENT RESULT: "TUV-0910-04_fin2"

9/10/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.495000	34.90	10.7	46	11.2	AV	L1	GND
1.870000	29.10	11.0	46	16.9	AV	L1	GND
23.995000	27.90	11.5	50	22.1	AV	L1	GND

13.99% OCCUPIED BANDWIDTH

13.1.The Requirement for RSS-Gen Clause 6.6

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth. When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth

13.2.EUT Configuration on Measurement

The following equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

13.3.Operating Condition of EUT

13.3.1.Setup the EUT and simulator as shown as Section 5.1.

13.3.2.Turn on the power of all equipment.

13.3.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, 2480MHz TX frequency to transmit.

13.4.Test Procedure

13.4.1.The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The transmitter output was connected to the spectrum analyzer through a low loss cable.

13.4.2.The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW. Set RBW of spectrum analyzer to 30kHz and VBW to 100kHz.

13.4.3.Set SPA “Meas” function, Select “Occupied Bandwidth” function, Select “99%

Power Bandwidth”. The frequency of the upper and lower markers indicating the edges of the transmitters “99% Power” emission bandwidth shall be recorded to automate by SPA.

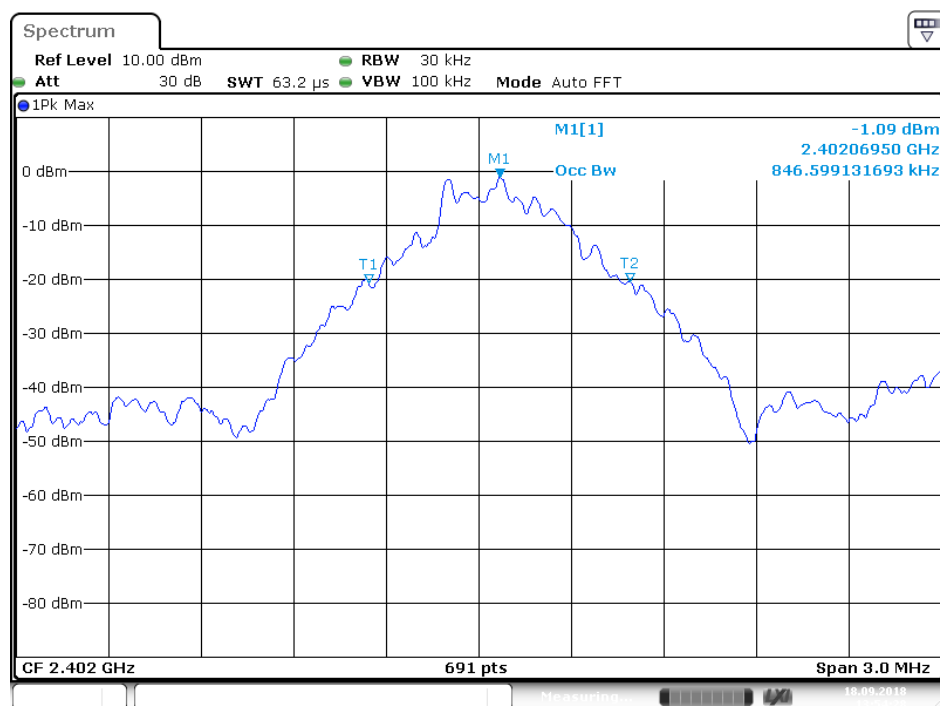
13.5.Measurement Result

Channel	Frequency (MHz)	BDR mode 99% Bandwidth (MHz)	EDR mode 99% Bandwidth (MHz)	Result
Low	2402	0.847	1.151	Pass
Middle	2441	0.838	1.142	Pass
High	2480	0.842	1.146	Pass

The spectrum analyzer plots are attached as below.

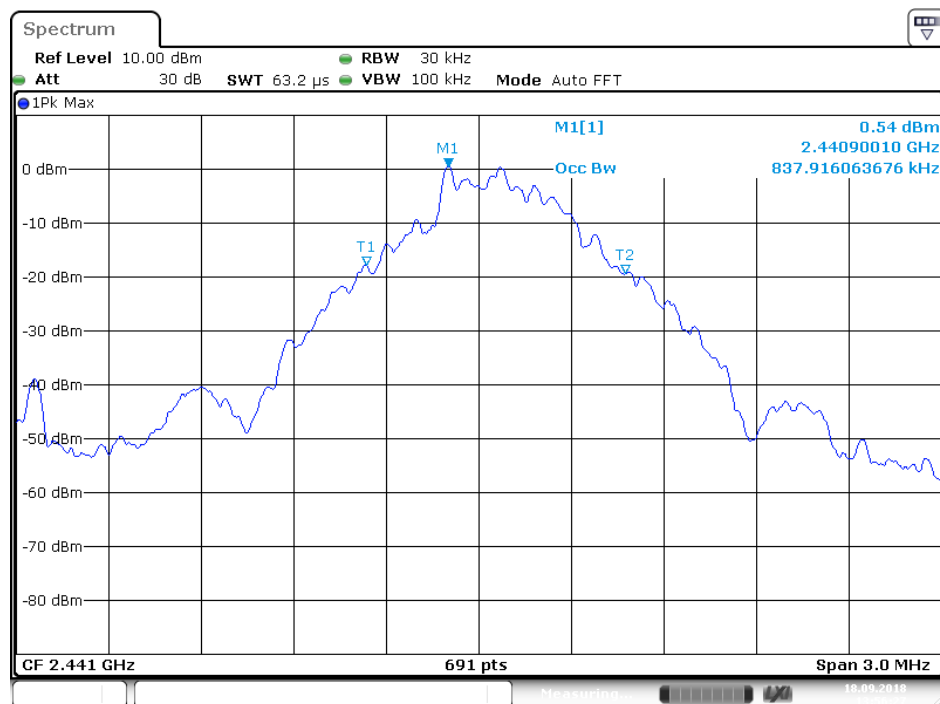
BDR mode

Low channel



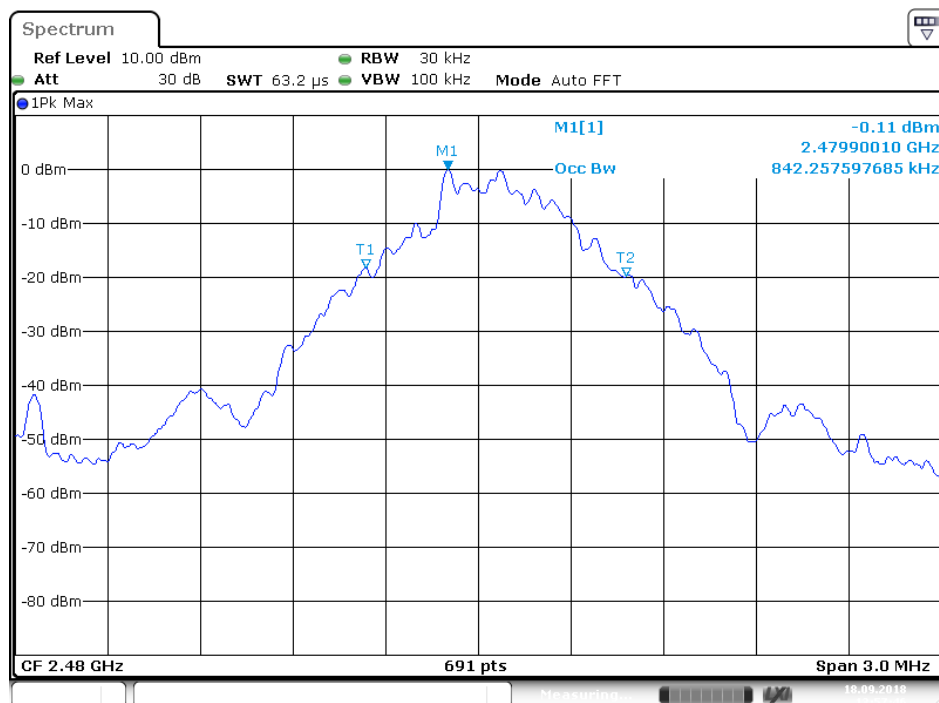
Date: 18.SEP.2018 13:54:29

Middle channel



Date: 18.SEP.2018 13:56:27

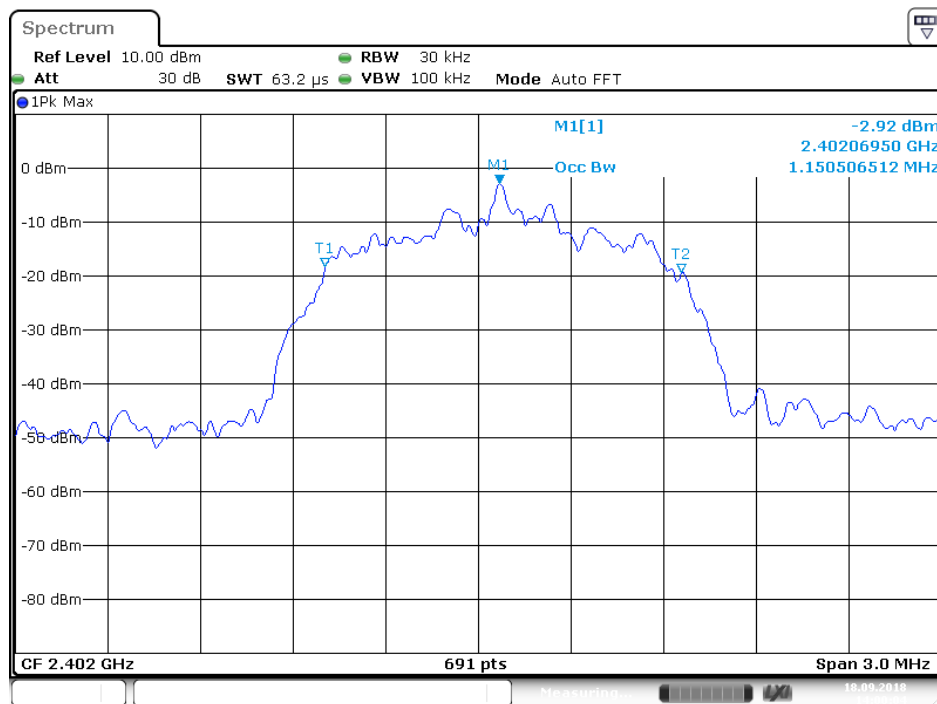
High channel



Date: 18.SEP.2018 13:57:46

EDR mode

Low channel



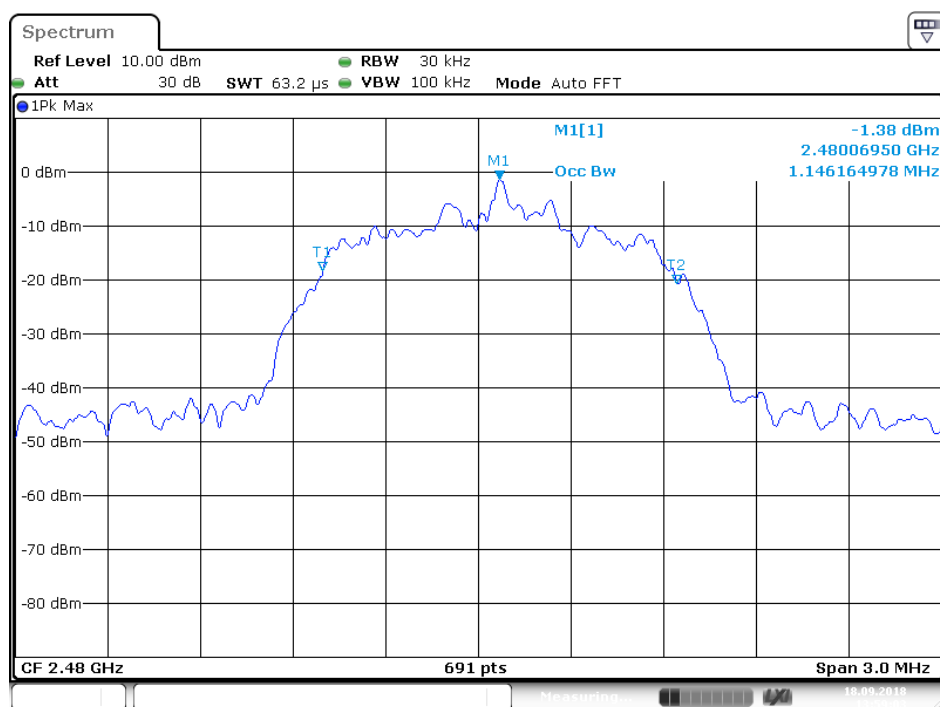
Date: 18.SEP.2018 14:00:04

Middle channel



Date: 18.SEP.2018 13:59:33

High channel



Date: 18.SEP.2018 13:59:03

14.CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

14.1.Block Diagram of Test Setup



(EUT: Active Noise Cancelling Bluetooth Stereo Headphones)

14.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

14.3.EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

14.4.Operating Condition of EUT

14.4.1.Setup the EUT and simulator as shown as Section 14.1.

14.4.2.Turn on the power of all equipment.

14.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

14.5. Test Procedure

14.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

14.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz

14.5.3. The Conducted Spurious Emission was measured and recorded.

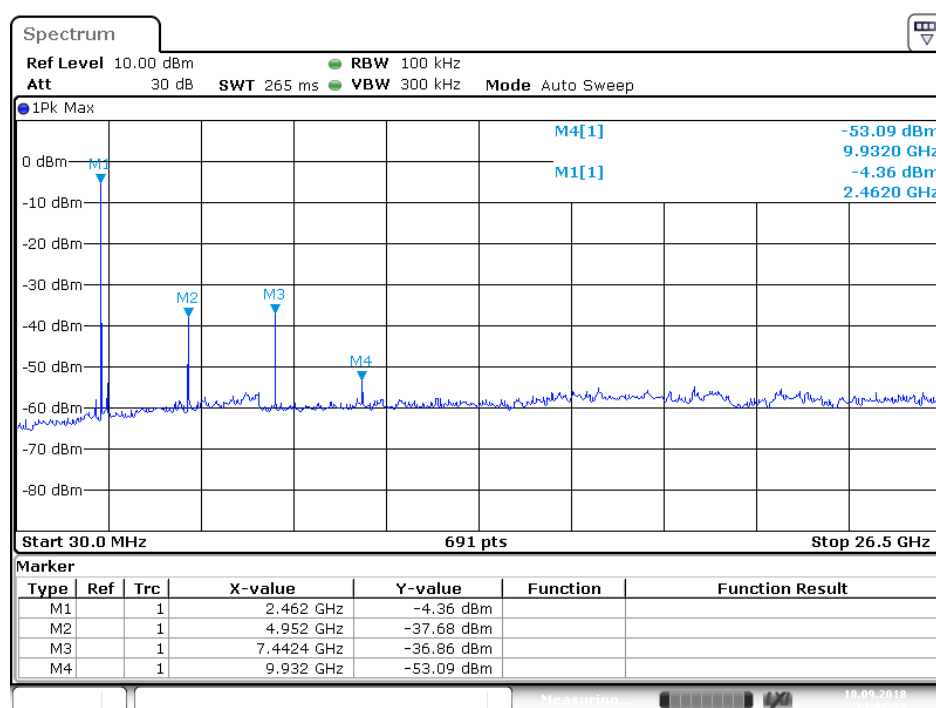
14.6. Test Result

Pass.

The spectrum analyzer plots are attached as below.

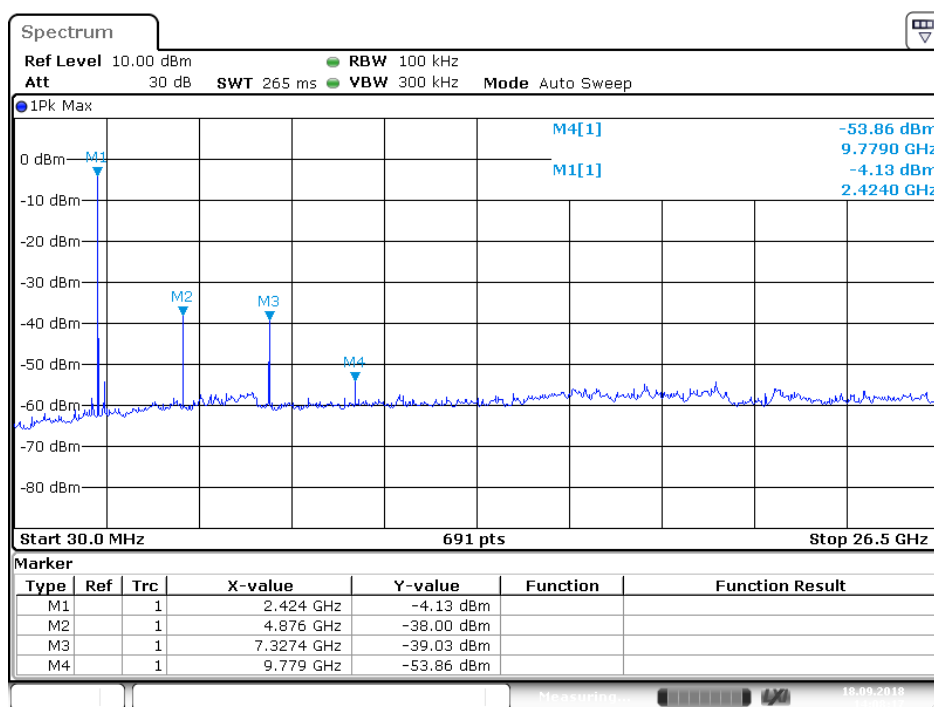
BDR mode

Low Channel 2402MHz



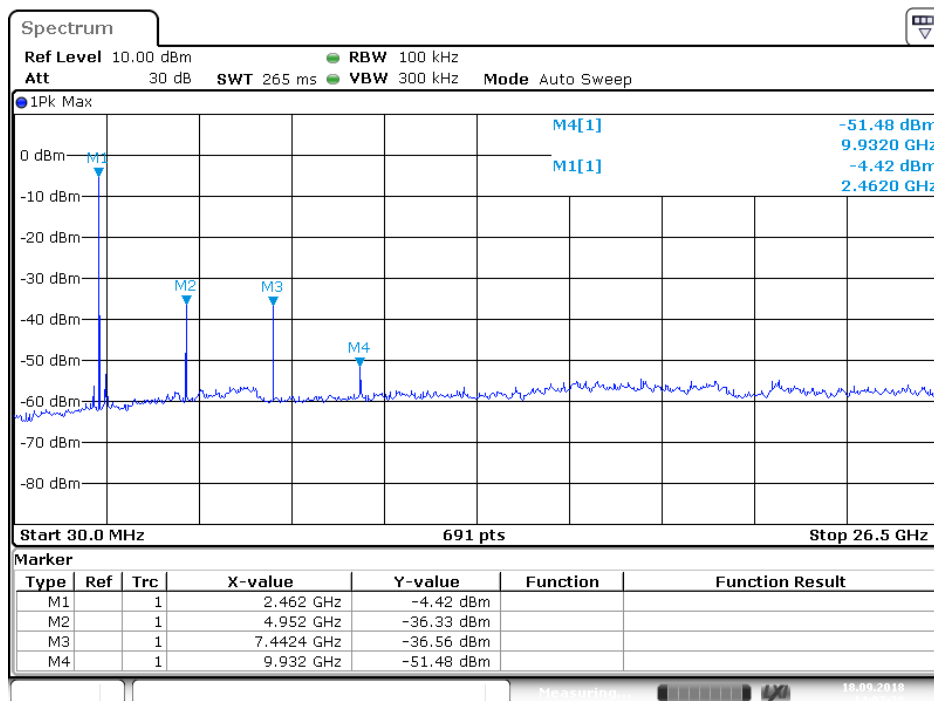
Date: 18.SEP.2018 14:08:53

Middle Channel 2441MHz



Date: 18.SEP.2018 14:08:17

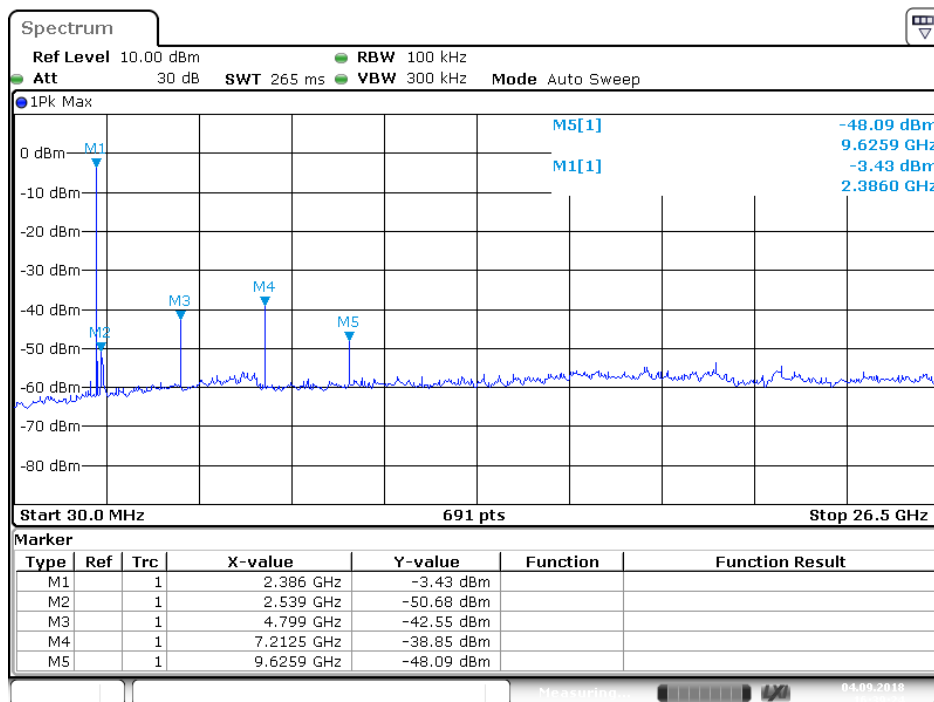
High Channel 2480MHz



Date: 18.SEP.2018 14:07:39

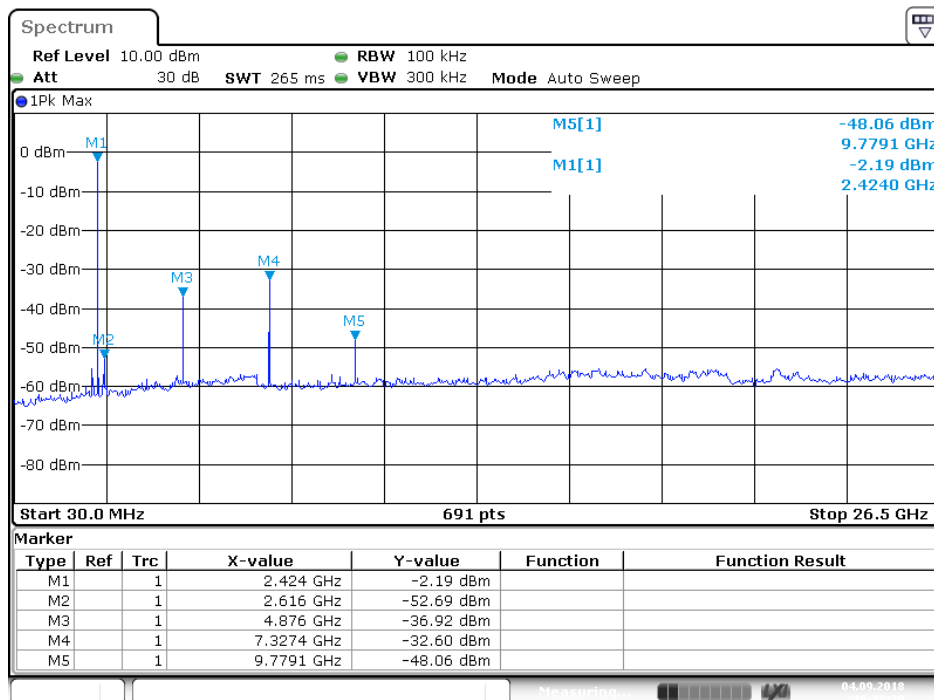
EDR mode

Low Channel 2402MHz



Date: 4.SEP.2018 16:39:24

Middle Channel 2441MHz



Date: 4.SEP.2018 16:38:20

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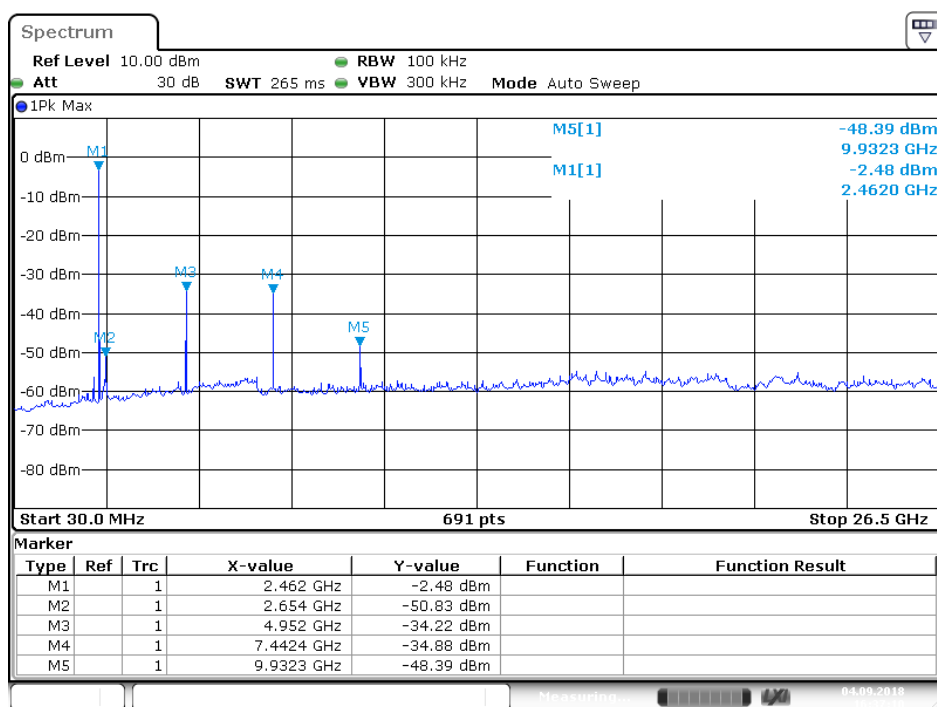
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High Channel 2480MHz



Date: 4.SEP.2018 16:37:10

15.ANTENNA REQUIREMENT

15.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Max Antenna gain of EUT is 2.59dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.