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ACCURATE TECHNOLOGY CO., LTD

FCC Class B 3M Radiated

EUT: Multimedia Speaker M/N:S3000 Pro

Applicant: EDIFIER

Operating Condition: TX 2480MHz + TX 5814MHz

Test Site: 2# Chamber

Operator: WADE

Test Specification: AC 120V/60Hz

Comment: X

Start of Test: 2018-8-10 /

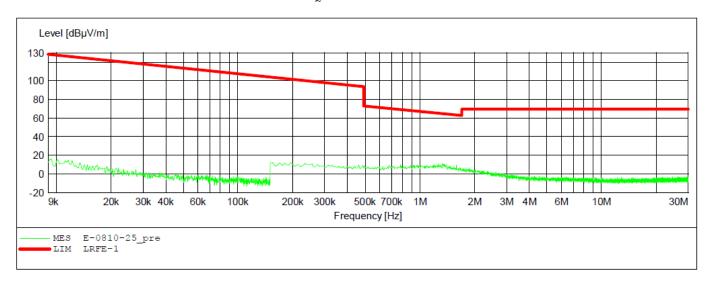
SCAN TABLE: "LFRE Fin"

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 1516M 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz 1516M





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ACCURATE TECHNOLOGY CO., LTD

FCC Class B 3M Radiated

EUT: Multimedia Speaker M/N:S3000 Pro

Applicant: EDIFIER

Operating Condition: TX 2480MHz + TX 5814MHz

Test Site: 2# Chamber

Operator: WADE

Test Specification: AC 120V/60Hz

Comment: Y

Start of Test: 2018-8-10 /

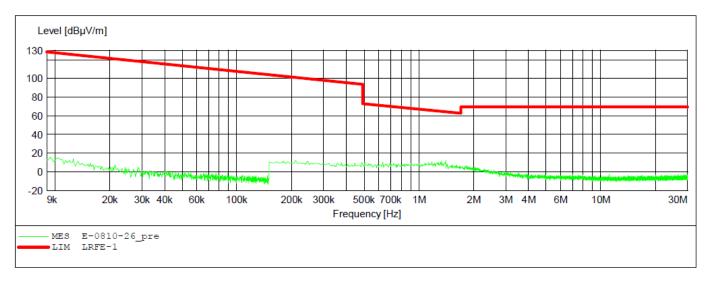
SCAN TABLE: "LFRE Fin"

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 1516M 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz 1516M





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ACCURATE TECHNOLOGY CO., LTD

FCC Class B 3M Radiated

EUT: Multimedia Speaker M/N:S3000 Pro

Applicant: EDIFIER

Operating Condition: TX 2480MHz + TX 5814MHz

Test Site: 2# Chamber

Operator: WADE

Test Specification: AC 120V/60Hz

Comment: Z

Start of Test: 2018-8-10 /

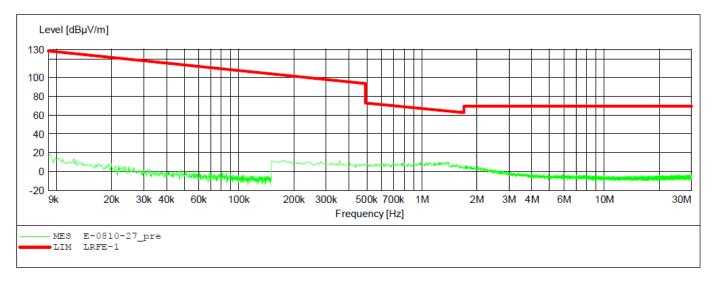
SCAN TABLE: "LFRE Fin"

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 1516M 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz 1516M





Site: 2# Chamber

Tel:+86-0755-26503290

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30MHz-1000MHz test data (Bluetooth+5.8G)



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F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Fax:+86-0755-26503396

Job No.: LGW2018 #2314 Polarization: Horizontal

Standard: FCC Class B 3M Radiated Power Source: AC 120V/60Hz

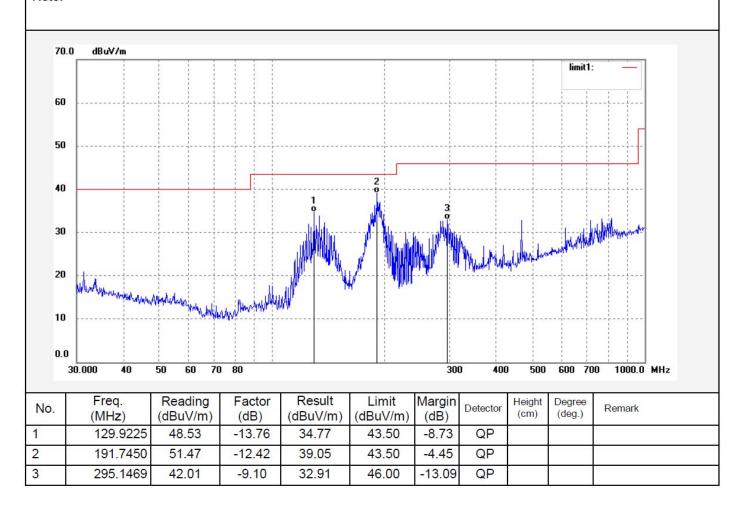
Test item: Radiation Test Date: 18/08/05/

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

EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2402MHz+TX 5736MHz Distance: 3m

S3000 Pro Model: Applicant: **EDIFIER**







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Site: 2# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

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Job No.: LGW2018 #2315 Polarization: Vertical

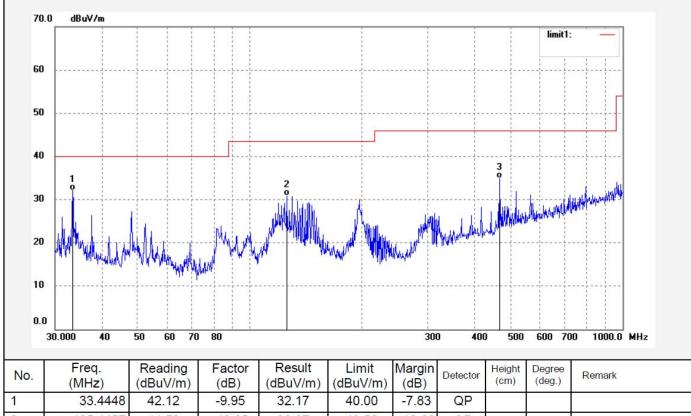
Power Source: AC 120V/60Hz Standard: FCC Class B 3M Radiated

Test item: Radiation Test Date: 18/08/05/

Temp.(C)/Hum.(%) 23 C / 48 % Time: EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2402MHz+TX 5736MHz Distance: 3m

Model: S3000 Pro Applicant: **EDIFIER**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.4448	42.12	-9.95	32.17	40.00	-7.83	QP			
2	125.4457	44.52	-13.65	30.87	43.50	-12.63	QP			
3	467.2348	39.95	-5.10	34.85	46.00	-11.15	QP			





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Job No.: LGW2018 #2317

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2441MHz+TX 5762MHz

Model: S3000 Pro Applicant: EDIFIER Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 18/08/05/

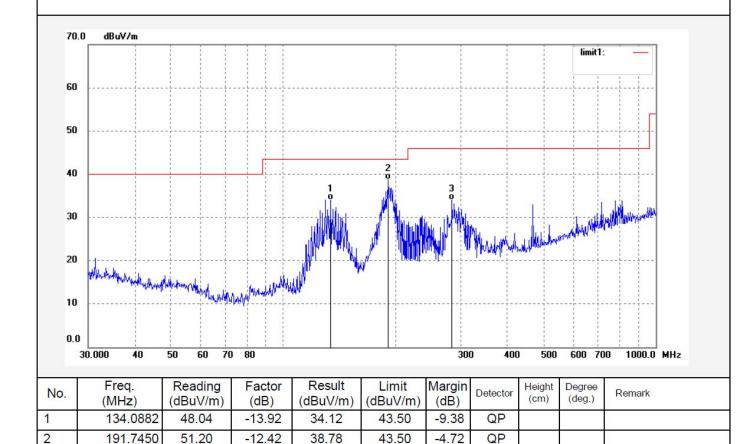
Time:

Engineer Signature: WADE

Distance: 3m

Note:

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46.00

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Site: 2# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

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Job No.: LGW2018 #2316 Polarization: Vertical

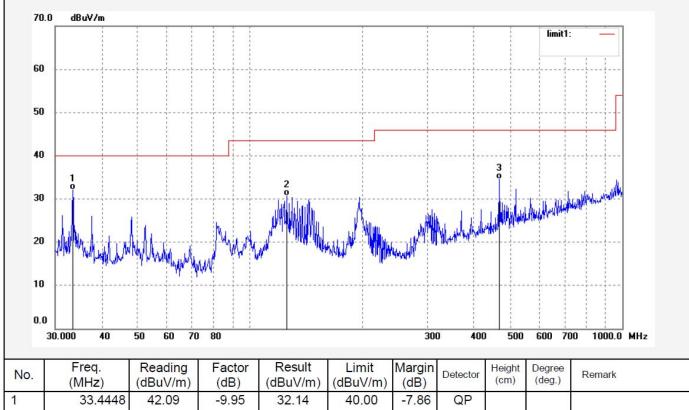
Standard: FCC Class B 3M Radiated Power Source: AC 120V/60Hz

Test item: Radiation Test Date: 18/08/05/

Temp.(C)/Hum.(%) 23 C / 48 % Time: EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2441MHz+TX 5762MHz Distance: 3m

Model: S3000 Pro Applicant: **EDIFIER**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.4448	42.09	-9.95	32.14	40.00	-7.86	QP			
2	125.4457	44.30	-13.65	30.65	43.50	-12.85	QP			
3	467.2348	39.65	-5.10	34.55	46.00	-11.45	QP			





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Site: 2# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Horizontal

Power Source: AC 120V/60Hz

Job No.: LGW2018 #2318

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2480MHz+TX 5814MHz

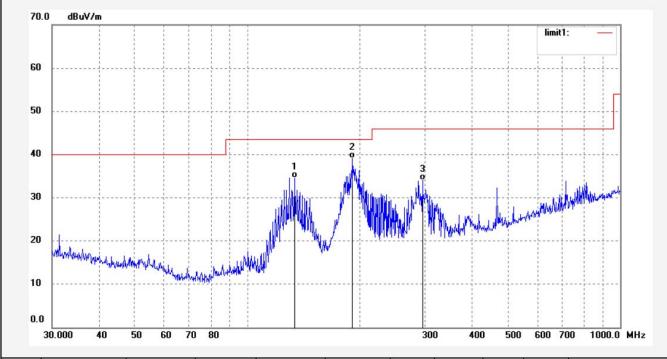
Model: S3000 Pro Applicant: **EDIFIER**

Time: Engineer Signature: WADE

Distance: 3m

Date: 18/08/05/

Polarization:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	134.0882	48.43	-13.92	34.51	43.50	-8.99	QP			
2	191.7450	51.59	-12.42	39.17	43.50	-4.33	QP			
3	295.1469	43.07	-9.10	33.97	46.00	-12.03	QP			





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Job No.: LGW2018 #2319

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2480MHz+TX 5814MHz

Model: S3000 Pro Applicant: EDIFIER

Note:

Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

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Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

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1GHz-18GHz test data (Bluetooth+5.8G)



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Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

Distance: 3m

Job No.: LGW2018 #2270

Standard: FCC Class B 3M Radiated

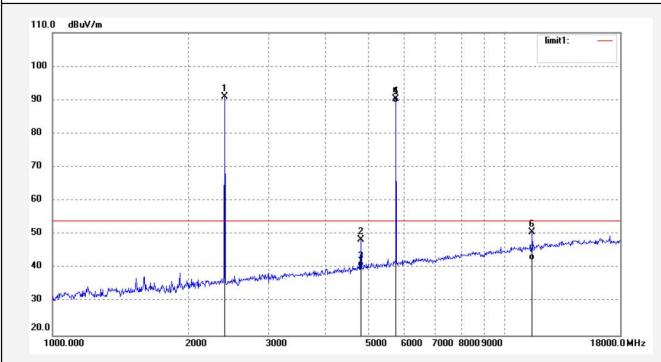
Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2402MHz+TX 5736MHz

Model: S3000 Pro Applicant: EDIFIER



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	90.12	0.89	91.01	/	/	peak			
2	4804.026	41.09	7.40	48.49	74.00	-25.51	peak			
3	4804.026	32.87	7.40	40.27	54.00	-13.73	AVG			
4	5736.000	80.09	10.21	90.30	114.00	-23.70	peak			
5	5736.000	78.99	10.21	89.20	94.00	-4.80	AVG			
6	11472.258	30.78	19.91	50.69	74.00	-23.31	peak			
7	11472.258	22.44	19.91	42.35	54.00	-11.65	AVG			





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Time:

Site: 2# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

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Job No.: LGW2018 #2271 Polarization: Vertical

Standard: FCC Class B 3M Radiated Power Source: AC 120V/60Hz

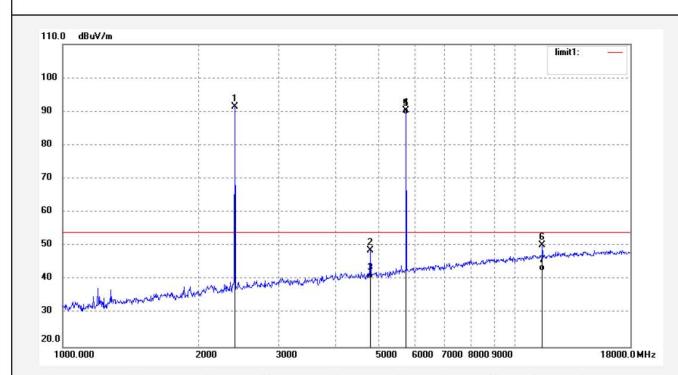
Test item: Radiation Test Date: 18/08/05/

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

EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2402MHz+TX 5736MHz Distance: 3m Model: S3000 Pro

Applicant: EDIFIER



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	90.59	0.89	91.48	1	1	peak			
2	4804.024	41.18	7.40	48.58	74.00	-25.42	peak			
3	4804.024	32.97	7.40	40.37	54.00	-13.63	AVG			,
4	5736.000	80.16	10.21	90.37	114.00	-23.63	peak			
5	5736.000	79.06	10.21	89.27	94.00	-4.73	AVG			
6	11472.268	30.36	19.91	50.27	74.00	-23.73	peak			
7	11472.268	22.67	19.91	42.58	54.00	-11.42	AVG			





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Report No.: ATE20181572

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Job No.: LGW2018 #2273

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2441MHz+TX 5762MHz

Model: S3000 Pro Applicant: EDIFIER

Note:

Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

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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	92.25	1.06	93.31	1	/	peak			
2	4882.027	40.74	8.11	48.85	74.00	-25.15	peak			
3	4882.027	32.25	8.11	40.36	54.00	-13.64	AVG			
4	5762.000	80.01	10.37	90.38	114.00	-23.62	peak			
5	5762.000	78.71	10.37	89.08	94.00	-4.92	AVG			
6	11524.269	30.20	20.10	50.30	74.00	-23.70	peak			
7	11524.269	22.69	20.10	42.79	54.00	-11.21	AVG			



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Report No.: ATE20181572

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Job No.: LGW2018 #2272 Polarization: Vertical

Standard: FCC Class B 3M Radiated Power Source: AC 120V/60Hz

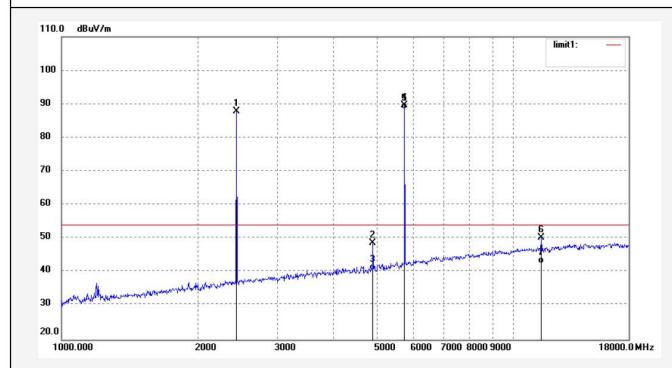
Test item: Radiation Test Date: 18/08/05/

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

EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2441MHz+TX 5762MHz Distance: 3m

Model: S3000 Pro Applicant: EDIFIER



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	86.76	1.06	87.82	1	/	peak			
2	4882.028	40.57	8.11	48.68	74.00	-25.32	peak			
3	4882.028	32.46	8.11	40.57	54.00	-13.43	AVG			
4	5762.000	79.37	10.37	89.74	114.00	-24.26	peak			
5	5762.000	78.07	10.37	88.44	94.00	-5.56	AVG			
6	11524.270	30.16	20.10	50.26	74.00	-23.74	peak			
7	11524.270	22.54	20.10	42.64	54.00	-11.36	AVG			



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ACCURATE TECHNOLOGY CO., LTD.

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Job No.: LGW2018 #2274

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2480MHz+TX 5814MHz

Model: \$3000 Pro Applicant: EDIFIER

Note:

Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

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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	92.42	1.10	93.52	1	1	peak			
2	4960.027	40.59	8.60	49.19	74.00	-24.81	peak		j.:	
3	4960.027	32.94	8.60	41.54	54.00	-12.46	AVG			
4	5814.000	80.44	10.64	91.08	114.00	-22.92	peak			
5	5814.000	79.04	10.64	89.68	94.00	-4.32	AVG			
6	11628.288	30.00	20.60	50.60	74.00	-23.40	peak			
7	11628.288	22.08	20.60	42.68	54.00	-11.32	AVG			





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ACCURATE TECHNOLOGY CO., LTD.

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Job No.: LGW2018 #2275

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2480MHz+TX 5814MHz

Model: S3000 Pro Applicant: EDIFIER

Note:

Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

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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	89.00	1.10	90.10	1	1	peak			
2	4960.031	40.34	8.60	48.94	74.00	-25.06	peak			
3	4960.031	31.92	8.60	40.52	54.00	-13.48	AVG		3:	
4	5814.000	79.97	10.64	90.61	114.00	-23.39	peak			
5	5814.000	78.57	10.64	89.21	94.00	-4.79	AVG			
6	11628.275	29.77	20.60	50.37	74.00	-23.63	peak			
7	11628.275	21.53	20.60	42.13	54.00	-11.87	AVG			



Report No.: ATE20181572 Page 126 of 159

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

18GHz-26.5GHz test data (Bluetooth+5.8G)



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Job No.: LGW2018 #2277 Polarization: Horizontal

Standard: FCC Class B 3M Radiated Power Source: AC 120V/60Hz

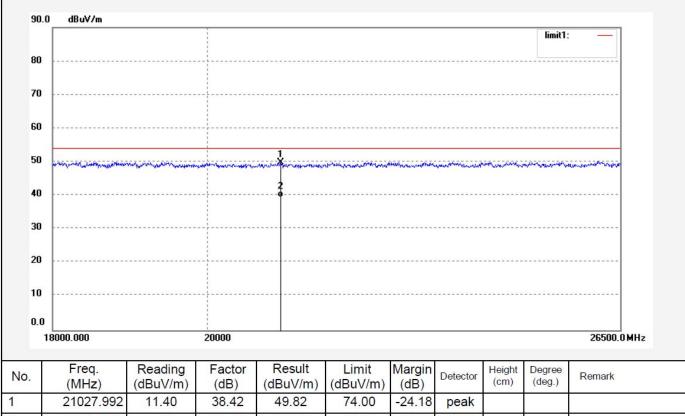
Test item: Radiation Test Date: 18/08/05/

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

EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2402MHz+TX 5736MHz Distance: 3m S3000 Pro Model:

Applicant: **EDIFIER**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21027.992	11.40	38.42	49.82	74.00	-24.18	peak			
2	21027.992	1.12	38.42	39.54	54.00	-14.46	AVG			





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ACCURATE TECHNOLOGY CO., LTD.

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Job No.: LGW2018 #2276

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2402MHz+TX 5736MHz

Model: \$3000 Pro Applicant: EDIFIER

Note:

Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

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0.0	Freq.				(dBuV/m)	(dB)	D october	(cm)	(deg.)	IXOIIIC





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Job No.: LGW2018 #2278

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2441MHz+TX 5762MHz

Model: S3000 Pro Applicant: EDIFIER

Note:

Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

			-							
									limit1:	_
80										
70										
60										
50	Mary mark of the state of the s	personal market personal perso	Maria de la composição de	with a state of the state of th	- Brokensking beromber print	1	more and an analysis of the second	year agreemped to	المدارسية المراسية المراسية	المرسية المراجعة المراجعة المراجعة المراجعة
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30					**********					
20						-				
10										
0.0										
1	8000.000		20000			•				26500.0 MHz
	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
	22701.603	9.77	39.73	49.50	74.00	-24.50	peak			
+	22701.603	-0.28	39.73	39.45	54.00	-14.55				





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Report No.: ATE20181572

Job No.: LGW2018 #2279

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2441MHz+TX 5762MHz

Model: S3000 Pro Applicant: EDIFIER

Note:

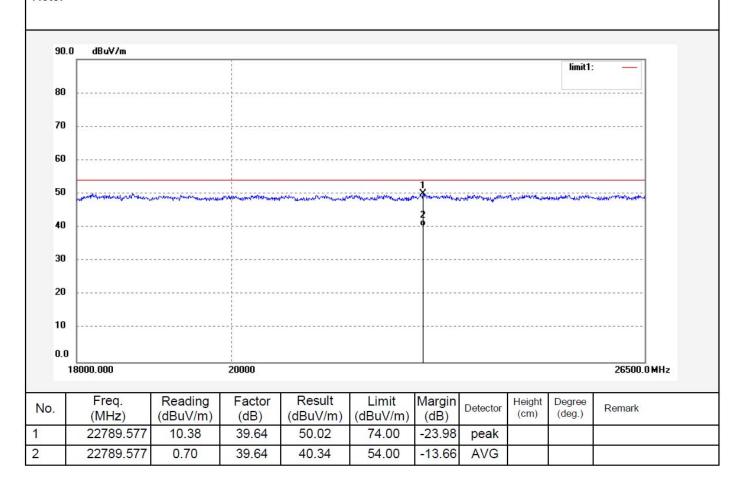
Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE







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Report No.: ATE20181572

Job No.: LGW2018 #2281

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2480MHz+TX 5814MHz

Model: S3000 Pro Applicant: EDIFIER

Note:

Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

			-						7 2	
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20										
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1	8000.000		20000		- J					26500.0 MHz
	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
_	21916.487	10.72	39.25	49.97	74.00	-24.03	peak			
	21310.407	10.12	00.20				1000			





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Job No.: LGW2018 #2280

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2480MHz+TX 5814MHz

Model: S3000 Pro Applicant: EDIFIER

Note:

Polarization: Vertical

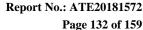
Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

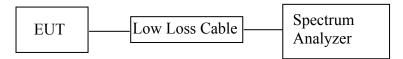
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40										
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0.0			20000							26500.0 MHz
	18000.000		20000							
		Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark





12.BAND EDGE COMPLIANCE TEST FOR 2.4G BT

12.1.Block Diagram of Test Setup



12.2. 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).

12.3. The Requirement For RSS-247 Section 5.5

Section 5.5: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

12.4.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.

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12.5. Operating Condition of EUT

- 12.5.1. Setup the EUT and simulator as shown as Section 12.1.
- 12.5.2. Turn on the power of all equipment.
- 12.5.3.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.

12.6.Test Procedure

- 12.6.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 12.6.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.
- 12.6.3. The band edges was measured and recorded.

12.7.Test Result

Non-hopping mode

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
	BDR mode	
2400.0	52.21	> 20dBc
2484.0	57.59	> 20dBc
	EDR mode	
2400.0	40.64	> 20dBc
2484.0	56.09	> 20dBc



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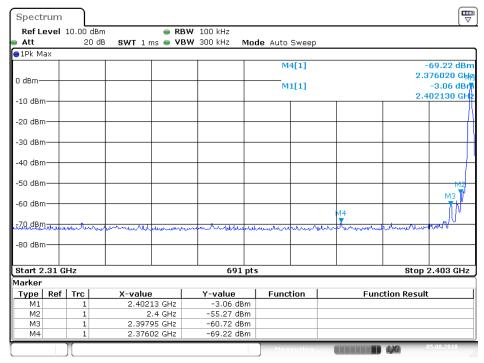
Hopping mode

Fraguency	Result of Band Edge	Limit of Band Edge
Frequency	Result of Ballu Euge	Lilling of Band Edge
(MHz)	(dBc)	(dBc)
()	(5-5)	(32-1)
	BDR mode	
2400.0	51.94	> 20dBc
2484.0	58.69	> 20dBc
	EDR mode	
2400.0	42.63	> 20dBc
2483.8	56.81	> 20dBc

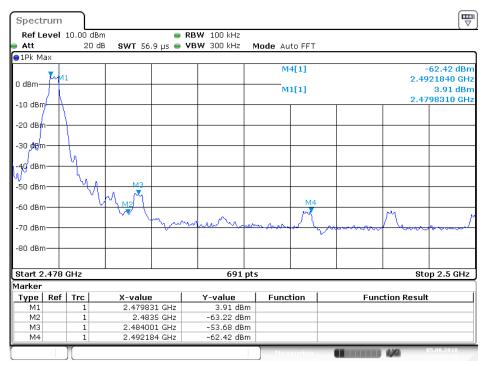


Non-hopping mode

BDR mode



Date: 5.AUG.2018 11:38:52

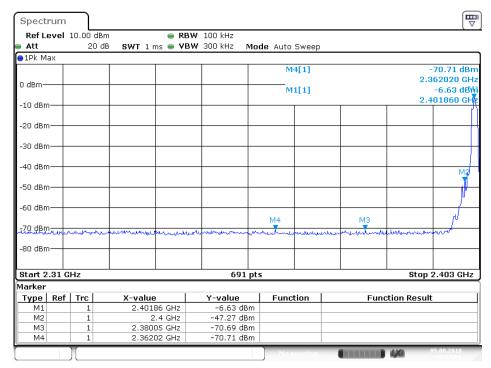


Date: 5.AUG.2018 11:37:10

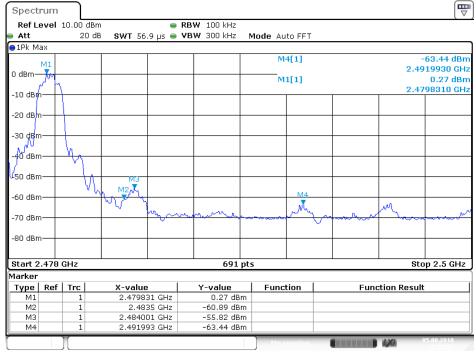
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EDR mode



Date: 5.AUG.2018 11:33:56

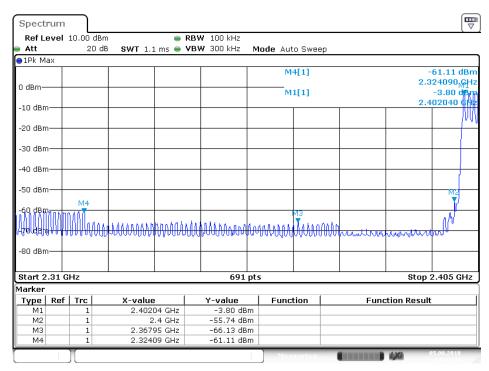


Date: 5.AUG.2018 11:35:51

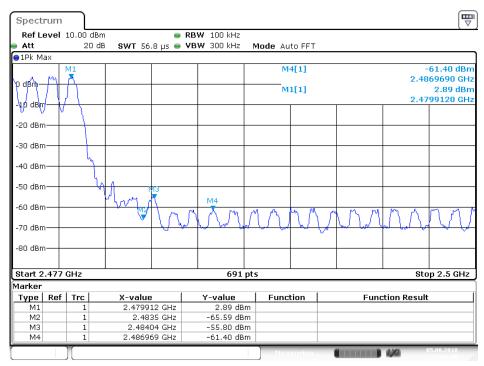


hopping mode

BDR mode



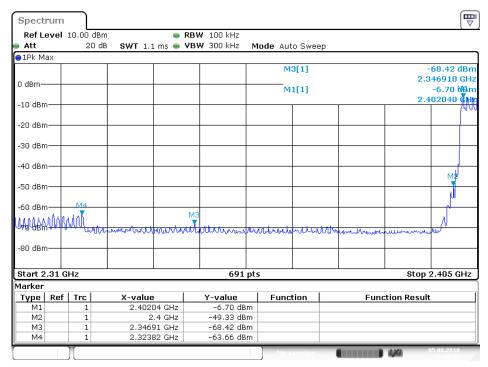
Date: 5.AUG.2018 11:41:39



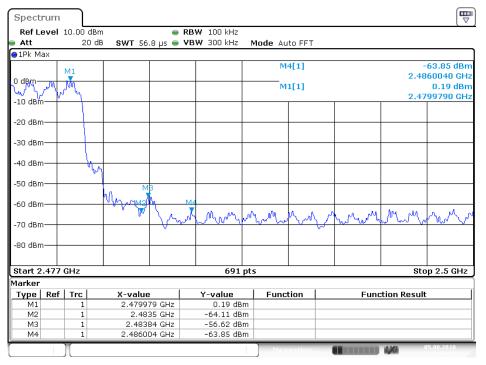
Date: 5.AUG.2018 11:43:46



EDR mode



Date: 5.AUG.2018 11:47:47



Date: 5.AUG.2018 11:46:19



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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.



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Non-hopping mode



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Job No.: LGW2018 #2217 Polarization: Horizontal

Standard: FCC PK Power Source: AC 120V/60Hz

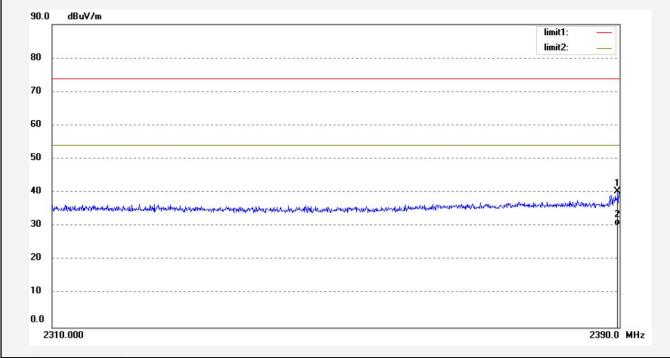
Test item: Radiation Test Date: 18/08/05/

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

EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2402MHz Distance: 3m

Model: S3000 Pro Manufacturer: EDIFIER



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	39.67	0.79	40.46	74.00	-33.54	peak			
2	2389.760	29.46	0.79	30.25	54.00	-23.75	AVG			





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Job No.: LGW2018 #2216

Standard: FCC PK

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2402MHz Model: S3000 Pro

Manufacturer: EDIFIER

Polarization: Vertical

Power Source: AC 120V/60Hz

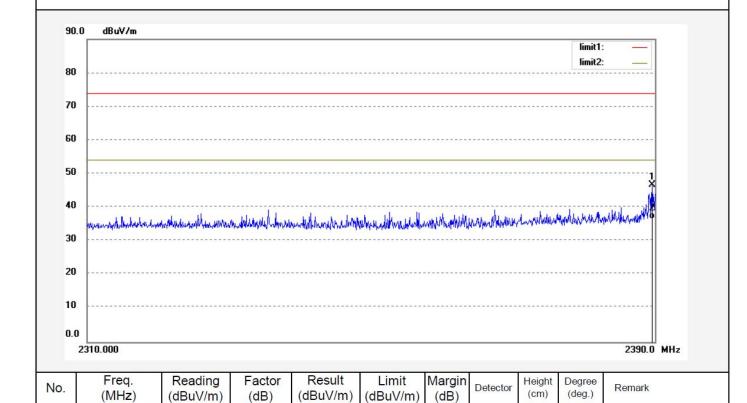
Date: 18/08/05/

Time:

Engineer Signature: WADE

Distance: 3m

Note:



74.00

54.00

-27.30

-17.55

peak

AVG

2389.600

2389.600

1

2

45.91

35.66

0.79

0.79

46.70

36.45





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Job No.: LGW2018 #2222

Standard: FCC PK

Test item: Radiation Test

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

EUT: Multimedia Speaker

Mode: TX 2480MHz Model: S3000 Pro

Manufacturer: EDIFIER

Polarization: Horizontal

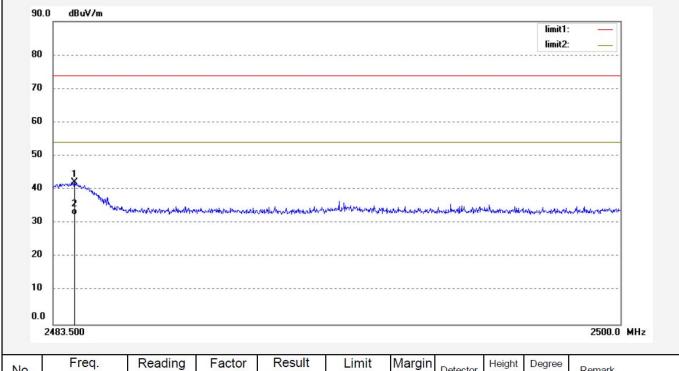
Power Source: AC 120V/60Hz

Date: 18/08/05/

Time:

Engineer Signature: WADE

Distance: 3m



	No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
I	1	2484.127	41.11	1.09	42.20	74.00	-31.80	peak			
	2	2484.127	31.45	1.09	32.54	54.00	-21.46	AVG			



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Job No.: LGW2018 #2223 Polarization: Vertical

Standard: FCC PK Power Source: AC 120V/60Hz

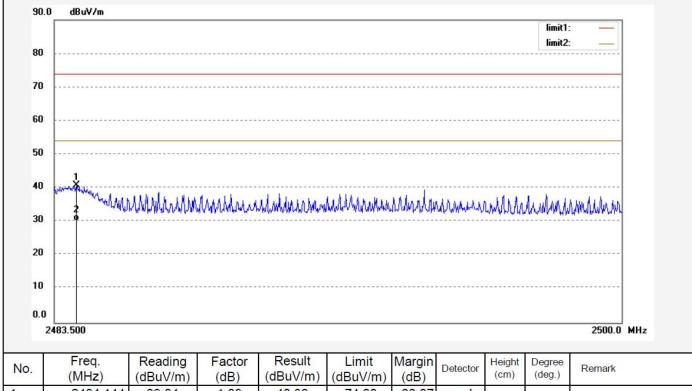
Test item: Radiation Test Date: 18/08/05/

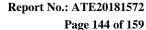
Temp.(C)/Hum.(%) 23 C / 48 % Time:

EUT: Multimedia Speaker Engineer Signature: WADE

Mode: TX 2480MHz Distance: 3m

Model: S3000 Pro Manufacturer: EDIFIER

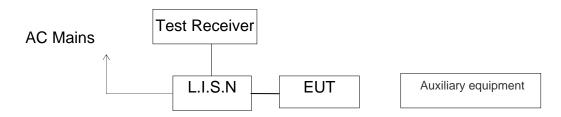






13.AC POWER LINE CONDUCTED EMISSION

13.1.Block Diagram of Test Setup



(EUT: Multimedia Speaker)

13.2. Power Line Conducted Emission Measurement Limits

Frequency	Limit d	B(μV)
(MHz)	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.

13.3. 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.



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13.4. Operating Condition of EUT

- 13.4.1. Setup the EUT and simulator as shown as Section 13.1.
- 13.4.2. Turn on the power of all equipment.
- 13.4.3.Let the EUT work in test mode and measure it.

13.5.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 500hm 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.

13.6.Data Sample

Frequency	Transducer	QuasiPeak	Average	QuasiPeak	Average	QuasiPeak	Average	Remark
(MHz)	value	Level	Level	Limit	Limit	Margin	Margin	(Pass/Fail)
	(dB)	(dBµV)	$(dB\mu V)$	(dBµV)	(dBµV)	(dB)	(dB)	
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(dB μ V) = Quasi-peak Reading/Average Reading + Transducer value Limit (dB μ V) = Limit stated in standard Margin = Limit (dB μ V) - Level (dB μ V)

Calculation Formula:

Margin = Limit ($dB\mu V$) - Level ($dB\mu V$)



13.7. 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. We tested the conducted emission of high and low voltage mode and recorded the worst mode data. All data was recorded in the Quasi-peak and average detection mode.

		& 5.8G	Module	e Opera	tion(AC 1	20V/6	0Hz)
MEASUREMENT	RESULT	: "TUV-	0807-8	_fin"			
8/7/2018 8:50							
Frequency MHz		Transd dB			Detector	Line	PE
0.185000 0.600000	36.10 28.70	10.5 10.7 11.0	64 56		~	L1 L1	GND GND
2.080000	33.20	11.0	56				GND
22.900000	36.20	11.4	60	23.8	QP	L1	GND
<i>MEASUREMENT</i>	RESULT	: "TUV-	0807-8	3_fin2"			
8/7/2018 8:50							
Frequency MHz	Level dBµV		Limit dBµV		Detector	Line	PE
0.185000	21.20	10.5	54		AV	L1	GND
0.600000			46			L1	GND
2.080000 22.900000	33.80 35.20	11.0 11.4	40			$_{ m L1}$	GND GND
MEASUREMENT	RESULT	: "TUV-	0807-7	_fin"			
0/7/2010 0.44	571M						
-, -,		Transd	Limit	Margin	Detector	Line	PE
8/7/2018 8:46 Frequency MHz	Level	Transd dB			Detector	Line	PE
Frequency MHz	Level dBµV	dB 10.5	dBµV 64	dB 27.8	QP	N	GND
Frequency MHz 0.185000 0.600000	Level dBµV 36.50 30.80	dB 10.5 10.7	dΒμV 64 56	dB 27.8 25.2	QP QP	N N	GND GND
Frequency MHz	Level dBµV 36.50 30.80 33.50	dB 10.5	dBμV 64 56 56	dB 27.8 25.2 22.5	QP QP QP	N N	GND
MHz 0.185000 0.600000 2.080000 22.900000	Level dBµV 36.50 30.80 33.50 36.00	dB 10.5 10.7 11.0 11.4	dBμV 64 56 56 60	dB 27.8 25.2 22.5 24.0	QP QP QP	N N N	GND GND GND
Frequency MHz 0.185000 0.600000 2.080000 22.900000	Level dBµV 36.50 30.80 33.50 36.00	dB 10.5 10.7 11.0 11.4	dBμV 64 56 56 60	dB 27.8 25.2 22.5 24.0	QP QP QP	N N N	GND GND GND
Frequency MHz 0.185000 0.600000 2.080000 22.900000 MEASUREMENT 8/7/2018 8:46	Level dBµV 36.50 30.80 33.50 36.00 RESULT	dB 10.5 10.7 11.0 11.4	dBμV 64 56 56 60	dB 27.8 25.2 22.5 24.0	QP QP QP QP	N N N	GND GND GND GND
Frequency MHz 0.185000 0.600000 2.080000 22.900000	Level dBµV 36.50 30.80 33.50 36.00 RESULT	dB 10.5 10.7 11.0 11.4 "TUV-	dBμV 64 56 56 60	dB 27.8 25.2 22.5 24.0 /_fin2" Margin	QP QP QP QP	N N N	GND GND GND
Frequency MHz 0.185000 0.600000 2.080000 22.900000 MEASUREMENT 8/7/2018 8:46 Frequency	Level dBµV 36.50 30.80 33.50 36.00 RESULT	dB 10.5 10.7 11.0 11.4 "TUV-	dBμV 64 56 56 60 0807-7 Limit dBμV	dB 27.8 25.2 22.5 24.0 "_fin2" Margin dB	QP QP QP QP	N N N	GND GND GND GND
Frequency MHz 0.185000 0.600000 2.080000 22.900000 MEASUREMENT 8/7/2018 8:46 Frequency MHz 0.185000 0.600000	Level dBµV 36.50 30.80 33.50 36.00 RESULT	dB 10.5 10.7 11.0 11.4 *********************************	dBµV 64 56 56 60 0807-7 Limit dBµV	dB 27.8 25.2 22.5 24.0 "fin2" Margin dB 33.2	QP QP QP QP QP	N N N N	GND GND GND GND
Frequency MHz 0.185000 0.600000 2.080000 22.900000 MEASUREMENT 8/7/2018 8:46 Frequency MHz 0.185000	Level dBµV 36.50 30.80 33.50 36.00 RESULT 6AM Level dBµV 21.10 31.10 33.90	dB 10.5 10.7 11.0 11.4 "TUV- Transd dB 10.5	dBµV 64 56 56 60 0807-7 Limit dBµV	dB 27.8 25.2 22.5 24.0 "fin2" Margin dB 33.2 14.9	QP QP QP QP QP Detector AV AV AV	N N N N	GND GND GND GND PE

The spectral diagrams are attached as below.



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ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Multimedia Speaker M/N:S3000 Pro

Applicant: EDIFIER

Operating Condition: BT&5.8G module OPERATION

Test Site: 1#Shielding Room

Operator: WADE
Test Specification: N 120V/60Hz
Comment: Mains port

Start of Test: 8/7/2018 / 8:43:52AM

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

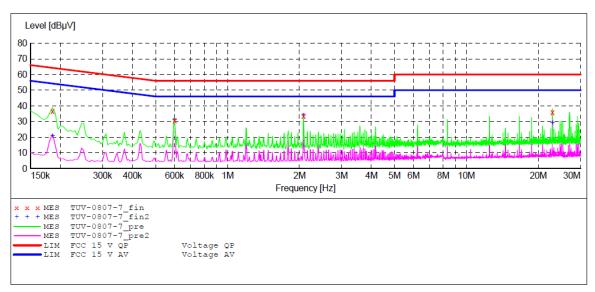
Short Description: SUB STD VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.

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-0807-7 fin"

8/7/2018	8:46AM							
Freque	ncy L	evel Tra	ınsd Lim	nit Ma	rgin :	Detector	Line	PΕ
	MHz	dΒμV	dB dE	βµV	dB			
0.185	000 3	6.50 1	.0.5	64	27.8	QP	N	GND
0.600	000 3	0.80 1	.0.7	56	25.2	QP	N	GND
2.080	000 3	3.50 1	1.0	56	22.5	QP	N	GND
22.900	000 3	6.00 1	1.4	60	24.0	QP	N	GND

MEASUREMENT RESULT: "TUV-0807-7_fin2"

8/7/2018 Frequer N			Limit dBµV	Margin dB	Detector	Line	PE
0.1850	000 21.10	10.5	54	33.2	AV	N	GND
0.6000	000 31.10	10.7	46	14.9	AV	N	GND
2.0800	33.90	11.0	46	12.1	AV	N	GND
22.9000	29.40	11.4	50	20.6	AV	N	GND



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ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

Multimedia Speaker M/N:S3000 Pro

Applicant: EDIFIER

Operating Condition: BT&5.8G module OPERATION

Test Site: 1#Shielding Room

WADE Operator:

Test Specification: L 120V/60Hz Comment:

Mains port 8/7/2018 / 8:47:23AM Start of Test:

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

SUB STD VTERM2 1.70 Short Description:

Detector Meas. IF Transducer
Time Bandw.

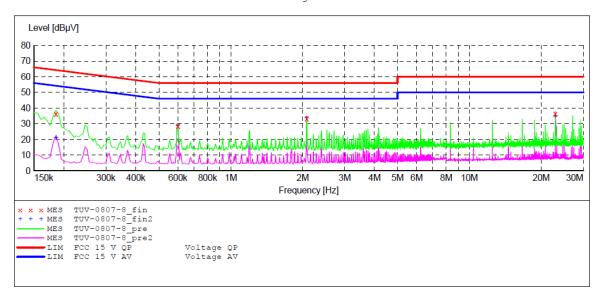
QuasiPeak 1.0 s 200 Hz NSLK8126 2008 Step Start Stop

Frequency Frequency Width 150.0 kHz 100.0 Hz 9.0 kHz

Average

150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008

Average



MEASUREMENT RESULT: "TUV-0807-8 fin"

8/7/2018 8:50 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.185000	36.10	10.5	64	28.2	QP	L1	GND
0.600000	28.70	10.7	56	27.3	QP	L1	GND
2.080000	33.20	11.0	56	22.8	QP	L1	GND
22.900000	36.20	11.4	60	23.8	QP	L1	GND

MEASUREMENT RESULT: "TUV-0807-8 fin2"

8/7/2018 8							
Frequenc MH	y Level z dBuV		Limit dBuV	Margin dB	Detector	Line	PE
1111	.Σ ασμν	aь	αυμν	aь			
0.18500	0 21.20	10.5	54	33.1	AV	L1	GND
0.60000	0 29.10	10.7	46	16.9	AV	L1	GND
2.08000	0 33.80	11.0	46	12.2	AV	L1	GND
22.90000	0 35.20	11.4	50	14.8	AV	L1	GND

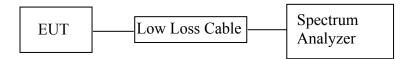
Shenzhen Accurate Technology Co., Ltd.



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14.99% OCCUPIED BANDWIDTH FOR 2.4G BT

14.1.Block Diagram of Test Setup



14.2. The Requirement for RSS-Gen Clause 6.7

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

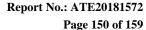
In some cases, the "x dB bandwidth" is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated x dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

14.3.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.

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 2402-2480MHz. We select 2402MHz, 2441MHz, 2480MHz TX frequency to transmit.





14.5.Test Procedure

- 14.5.1. The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 14.5.2. The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- 14.5.3. The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- 14.5.4. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

14.6.Measurement Result

Channel	Frequency (MHz)	BDR mode 99% Bandwidth (MHz)	EDR mode 99% Bandwidth (MHz)	Result
Low	2402	0.842	1.137	Pass
Middle	2441	0.838	1.142	Pass
High	2480	0.838	1.142	Pass

The spectrum analyzer plots are attached as below.

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BDR mode

Low channel Mode Auto FFT M1[1] Occ Bw



Date: 5.AUG.2018 11:11:50

Spectrum

Middle channel

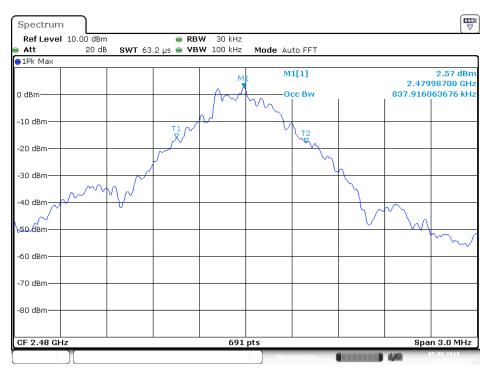


Date: 5.AUG.2018 11:12:43

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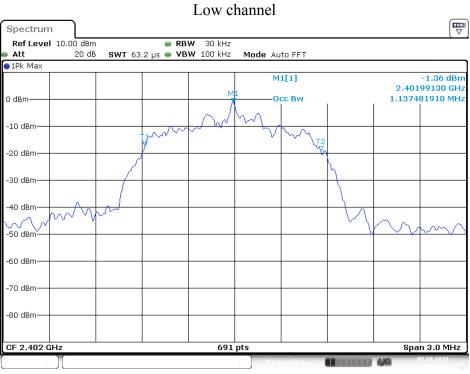


High channel



Date: 5.AUG.2018 11:13:19

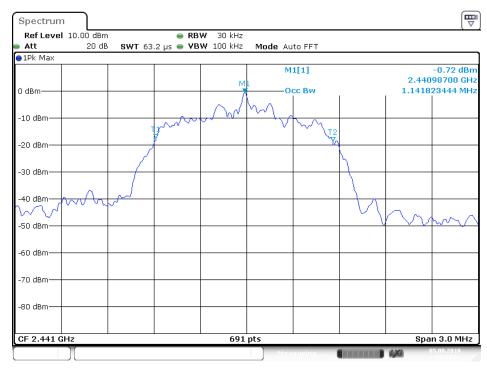
EDR mode



Date: 5.AUG.2018 11:15:12

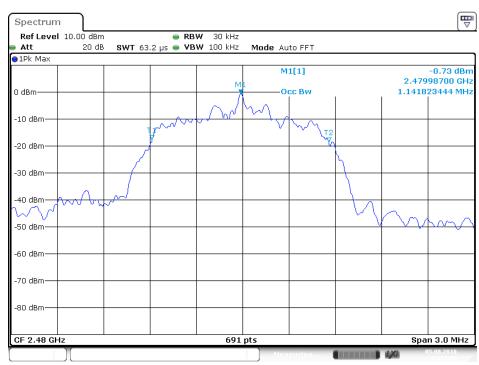
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Middle channel



Date: 5.AUG.2018 11:14:32

High channel



Date: 5.AUG.2018 11:13:53

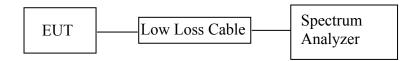


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15. CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

FOR 2.4G BT

15.1.Block Diagram of Test Setup



15.2. 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).

15.3. The Requirement For RSS-247 Section 5.5

Section 5.5: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.



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15.4.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.

15.5. Operating Condition of EUT

- 15.5.1. Setup the EUT and simulator as shown as Section 15.1.
- 15.5.2. Turn on the power of all equipment.
- 15.5.3.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.

15.6.Test Procedure

- 15.6.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 15.6.2.Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz
- 15.6.3. The Conducted Spurious Emission was measured and recorded.

15.7.Test Result

PASS.

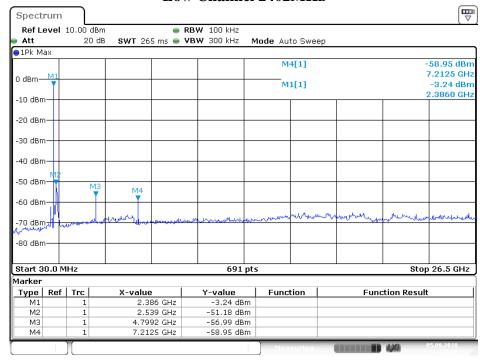
Note: This testing was carried out on all operation modes, but only the worst case was presented in this report.

The spectrum analyzer plots are attached as below.



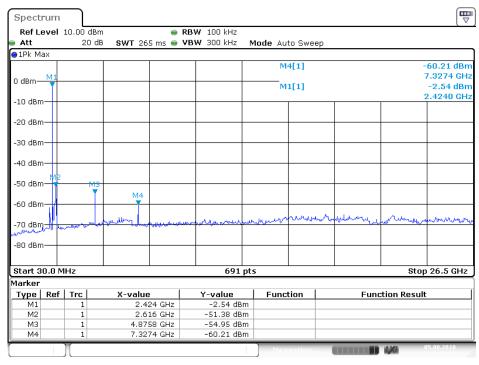
BDR mode

Low Channel 2402MHz



Date: 5.AUG.2018 11:22:33

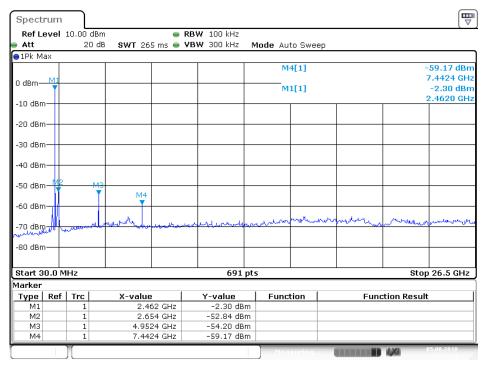
Middle Channel 2441MHz



Date: 5.AUG.2018 11:23:38



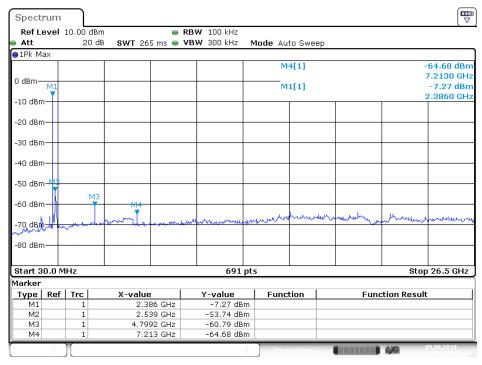
High Channel 2480MHz



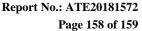
Date: 5.AUG.2018 11:24:20

EDR mode

Low Channel 2402MHz



Date: 5.AUG.2018 11:30:31





Middle Channel 2441MHz Spectrum Ref Level 10.00 dBm RBW 100 kHz **SWT** 265 ms VBW 300 kHz Att 20 dB Mode Auto Sweep ●1Pk Max M4[1] -64.45 dBm 7.3270 GHz M1[1] -5.91 dBm 2.4240 GHz -10 dBm--20 dBm -30 dBm 40 dBm -50 dBm -60 dBm -70 dBm -80 dBm Start 30.0 MHz 691 pts Stop 26.5 GHz Marker Type | Ref | Trc | X-value Y-value **Function Result** M1 M2 2.424 GHz 2.616 GHz -5.91 dBm -54.69 dBm МЗ -60.80 dBm

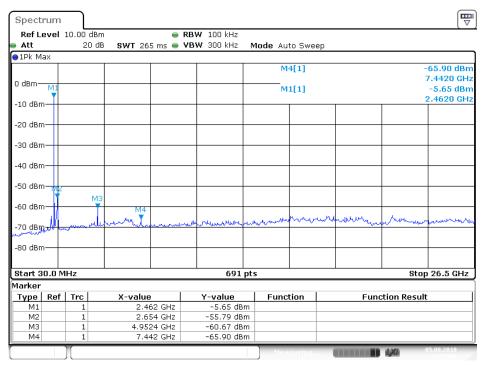
Date: 5.AUG.2018 11:28:12

7.327 GHz

Μ4

High Channel 2480MHz

-64.45 dBm



Date: 5.AUG.2018 11:27:00



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16.ANTENNA REQUIREMENT

16.1. 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.

16.2. Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.