

Testing Laborator



FCC Radio Test Report

FCC ID: VTV-RFBHN

Report No. : BTL-FCCP-1-2311T049
Fauipment : Bluetooth module

Equipment : Bluetooth module **Model Name** : RF-BHS, RF-BHN

Brand Name : TSC

Applicant: TSC Auto ID Technology Co., Ltd.

Address : 9F., No. 95, Minquan Rd. Xindian Dist. New Taipei

Radio Function : Bluetooth

FCC Rule Part(s) : FCC CFR Title 47, Part 15, Subpart C (15.247)

Measurement : ANSI C63.10-2013

Procedure(s)

Date of Receipt : 2023/11/21

Date of Test : 2023/12/1 ~ 2023/12/6

Issued Date : 2023/12/27

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

Prepared by

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2311T049	R00	Original Report.	2023/12/21	Invalid
BTL-FCCP-1-2311T049	R01	Revise Typo.	2023/12/27	Valid

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SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

Standard(s) Section Description		Test Result	Judgement	Remark
15.207	AC Power Line Conducted Emissions		N/A	Note (3)
15.205 15.209 15.247(d)	Radiated Emissions	APPENDIX A APPENDIX B APPENDIX C	Pass	
15.247 (a)(1)(iii)	Number of Hopping Frequency	APPENDIX D	Pass	
15.247 (a)(1)(iii)	Average Time of Occupancy	APPENDIX E	Pass	
15.247 (a)(1)	Hopping Channel Separation	APPENDIX F	Pass	
15.247 (a)(1)	Bandwidth	APPENDIX G	Pass	
15.247 (b)(1)	Output Power	APPENDIX H	Pass	
15.247(d)	Antenna conducted Spurious Emission	APPENDIX I	Pass	
15.203	Antenna Requirement		Pass	

NOTE:

- "N/A" denotes test is not applicable in this Test Report.
 The report format version is TP.1.1.1.
 This is a DC input device.

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1.1 TEST FACILITY

The test locations s The test location(s)						r 0659.	
` ,							
No. 68-1, Ln. 169, S	Sec. 2. Da	atona Rd)	(izhi Dist	New Taipei	City 221.	Taiwan	
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(FCC DN: TW0659)	1						
□ C05		CB08		CB11	\boxtimes	SR10	SR11
No. 72, Ln. 169, Se	c. 2, Dato	ng Rd., Xiz	hi Dist., N	lew Taipei C	ity 221, Ta	aiwan	
(FCC DN: TW0659))						
□ C06	\boxtimes	CB21		CB22			

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $\mathbf{y} \pm \mathbf{U}$, where expanded uncertainty \mathbf{U} is based on a standard uncertainty multiplied by a coverage factor of $\mathbf{k} = \mathbf{2}$, providing a level of confidence of approximately $\mathbf{95}$ %. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

A. Radiated emissions test:

Test Site	Measurement Frequency Range	U (dB)
	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
CB21	1 GHz ~ 6 GHz	5.21
CBZT	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

B. Conducted test:

4 1001 .	
Test Item	U (dB)
Occupied Bandwidth	0.5338
Output power	0.3659
Conducted Spurious emissions	0.5416
Conducted Band edges	0.5348
Dwell time	0.6606
Channel separation	0.6606
Channel numbers	0.6606

NOTE:

Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

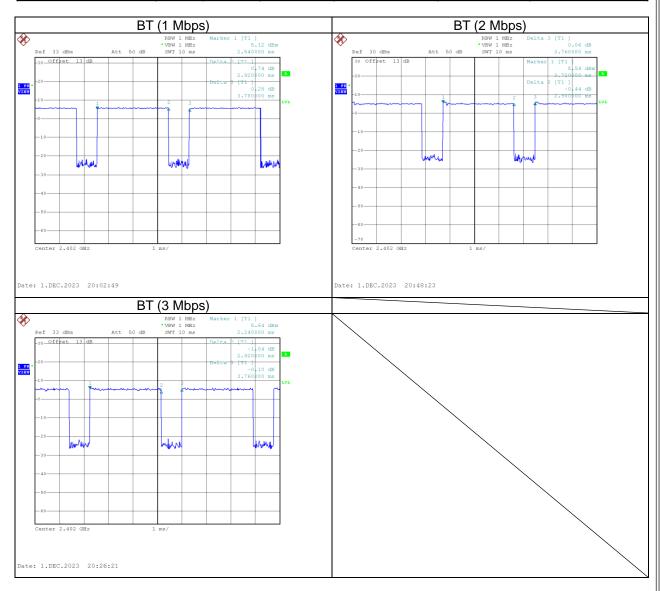
Test Item	Environment Condition	Test Voltage	Tested by
Radiated emissions below 1 GHz	Refer to data	DC 3.3V	Kevin Zhen
Radiated emissions above 1 GHz	Refer to data	DC 3.3V	Kevin Zhen
Number of Hopping Frequency	20.9 °C, 70 %	DC 3.3V	Jerry Chuang
Average Time of Occupancy	20.9 °C, 70 %	DC 3.3V	Jerry Chuang
Hopping Channel Separation	20.9 °C, 70 %	DC 3.3V	Jerry Chuang
Bandwidth	20.9 °C, 70 %	DC 3.3V	Jerry Chuang
Output Power	20.9 °C, 70 %	DC 3.3V	Jerry Chuang
Antenna conducted Spurious Emission	20.9 °C, 70 %	DC 3.3V	Jerry Chuang



1.4 DUTY CYCLE

If duty cycle is \geq 98 %, duty factor is not required. If duty cycle is < 98 %, duty factor shall be considered.

Remark	Delta 1			Delta 2	On Time/Period	10 log(1/Duty Cycle)
Mode	ON	Numbers	On Time (B)	Period (ON+OFF)	Duty Cycle	Duty Factor
Mode	(ms)	(ON)	(ms)	(ms)	(%)	(dB)
BT (1 Mbps)	2.920	1	2.920	3.780	77.25%	1.12
BT (2 Mbps)	2.900	1	2.900	3.760	77.13%	1.13
BT (3 Mbps)	2.920	1	2.920	3.760	77.66%	1.10





2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	Bluetooth module
Model Name	RF-BHS, RF-BHN
Brand Name	TSC
Model Difference	Different model distribute to different area.
Power Source	DC voltage supplied from host system.
Power Rating	3.3Vdc
Products Covered	N/A
Operation Band	2400 MHz ~ 2483.5 MHz
Operation Frequency	2402 MHz ~ 2480 MHz
Modulation Type	GFSK, π/4-DQPSK, 8DPSK
Modulation Technology	FHSS
Transfer Rate	1 Mbps, 2 Mbps, 3Mbps
	1 Mbps: -4.22 dBm (0.0004 W)
Output Power Max.	2 Mbps: -4.30 dBm (0.0004 W)
	3 Mbps: -4.09 dBm (0.0004 W)
Test Software Version	ISRT_V:2.1.32.6337
Test Model	RF-BHS
Sample Status	Engineering Sample
EUT Modification(s)	N/A

NOTE:

(1) The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

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(3) Table for Filed Antenna:

Ant.	Brand	Part Number	Type	Frequency Range (MHz)	Gain (dBi)
1.	TSC	AT9520-B2R4HAAT/LF	Chip Antenna	2400-2500	3.0

(4) The above Antenna information are derived from the antenna data sheet provided by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

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2.2 TEST MODES

Test Items	Test mode	Channel	Note
Transmitter Radiated Emissions (below 1GHz)	1 Mbps	39	-
Transmitter Radiated Emissions	1/3 Mbps	00/78	Bandedge
(above 1GHz)	1/3 Mbps	00/39/78	Harmonic
Transmitter Radiated Emissions (above 18GHz)	1 Mbps	39	-
Number of Hopping Frequency	1/3 Mbps	00~78	-
Average Time of Occupancy	1/3 Mbps	00/39/78	-
Hopping Channel Separation	1/3 Mbps	00/39/78	-
Bandwidth	1/3 Mbps	00/39/78	-
Peak Output Power	1/2/3 Mbps	00/39/78	-
Antenna conducted Spurious Emission	1/3 Mbps	00/39/78	-

NOTE:

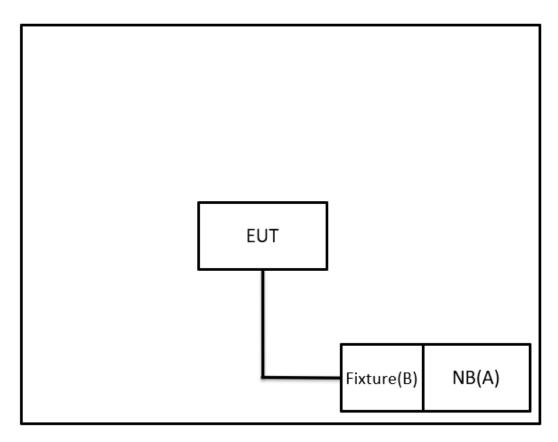
- (1) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Horizontal) is recorded.
- (2) All X, Y and Z axes are evaluated, but only the worst case (X axis) is recorded.

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2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
Α	NB	HP	TPN-I119	N/A	Furnished by test lab.
В	Fixture	N/A	CP2102	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
-	-		-	-	-

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3 RADIATED EMISSIONS TEST

3.1 LIMIT

In case the emission fall within the restricted band specified on 15.205, then the 15.209 limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000 MHz)

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(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
216~960	200	3
960~1000	500	3

LIMITS OF RADIATED EMISSIONS MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Radiated (dBu	Measurement Distance	
(IVITZ)	Peak	Average	(meters)
Above 1000	74	54	3

NOTE:

- (1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)

Margin Level = Measurement Value - Limit Value

Calculation example:

Reading Level (dBµV)		Correct Factor (dB/m)		Measurement Value (dBµV/m)
35.45	+	-11.37	II	24.08

Measurement Value		Limit Value		Margin Level
(dBµV/m)		(dBµV/m)		(dB)
24.08	-	40	=	-15.92

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW	1MHz / 3MHz for Peak,
(Emission in restricted band)	1MHz / 1/T for Average

Mode	VBW(Hz)
BT (1M)	360
BT (2M)	360
BT (3M)	360

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Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector
Start ~ Stop Frequency	90KHz~110KHz for QP detector
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector
Start ~ Stop Frequency	490KHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

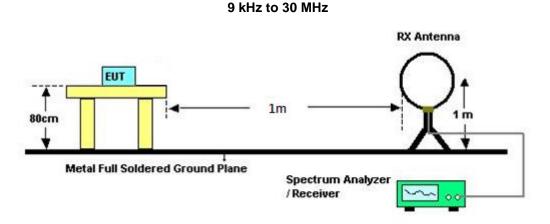
3.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- i. For the actual test configuration, please refer to the related Item EUT TEST PHOTO.

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP



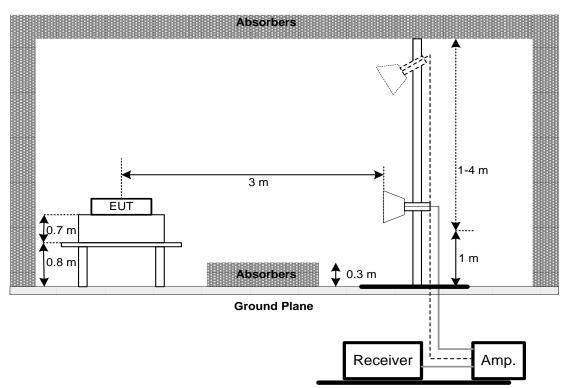


Absorbers

Ground Plane

Receiver Amp.

Above 1 GHz



3.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.



3.6 TEST RESULT - 9kHz TO 30 MHz

Please refer to the APPENDIX A.

3.7 TEST RESULT - 30 MHZ TO 1 GHZ

Please refer to the APPENDIX B.

3.8 TEST RESULT – ABOVE 1 GHZ

Please refer to the APPENDIX C.

NOTE:

(1) No limit: This is fundamental signal, the judgment is not applicable. For fundamental signal judgment was referred to Peak output test.

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4 NUMBER OF HOPPING CHANNEL

4.1 APPLIED PROCEDURES

Section	Test Item	Frequency Range (MHz)	Result
15.247(a)(1)(iii)	Number of Hopping Channel	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RBW	100 KHz
VBW	100 KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW=100KHz, VBW=100KHz, Sweep time = Auto.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

Please refer to the APPENDIX D.

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5 AVERAGE TIME OF OCCUPANCY

5.1 APPLIED PROCEDURES / LIMIT

Section	Test Item	Limit Frequency Range (MHz)		Result
15.247(a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

5.2 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyzer
- b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
- d. Sweep Time is more than once pulse time.
- e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- f. Measure the maximum time duration of one single pulse.
- g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
- h. Measure the maximum time duration of one single pulse.
- i. Measure the maximum time duration of one single pulse.

A Period Time = (channel number)*0.4

For Normal Mode (79 Channel):

DH1 Time Solt: Reading * (1600/2)*31.6/(channel number)

DH3 Time Solt: Reading * (1600/2)*31.6/(channel number)

DH5 Time Solt: Reading * (1600/2)*31.6/(channel number)

For AFH Mode (20 Channel):

DH1 Time Solt: Reading * (1600/2)*8/(channel number)

DH3 Time Solt: Reading * (1600/4)*8/(channel number)

DH5 Time Solt: Reading * (1600/6)*8/(channel number)

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

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6 Hopping Channel Separation Measurement

6.1 APPLIED PROCEDURES / LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 KHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RBW	30 KHz
VBW	100 KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

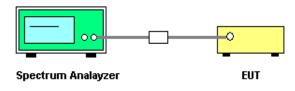
6.2 TEST PROCEDURE

- a. The EUT must have its hopping function enabled
- b. Span = wide enough to capture the peaks of two adjacent channels Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span Video (or Average) Bandwidth (VBW) ≥ RBW Sweep = Auto Detector function = Peak Trace = Max Hold

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 TEST RESULTS

Please refer to the APPENDIX F.

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7 BANDWIDTH TEST

7.1 APPLIED PROCEDURES

Section	Test Item	Frequency Range (MHz)
15.247(a)(2)	Bandwidth	2400-2483.5

Spectrum Parameter	Setting			
Attenuation	Auto			
Span Frequency	> Measurement Bandwidth or Channel Separation			
RBW	30 KHz (20dB Bandwidth) / 30 KHz (Channel Separation)			
VBW	100 KHz (20dB Bandwidth) / 100 KHz (Channel Separation)			
Detector	Peak			
Trace	Max Hold			
Sweep Time	Auto			

7.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW= 30KHz, VBW=100KHz, Sweep Time = Auto.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULTS

Please refer to the APPENDIX G.

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8 OUTPUT POWER TEST

8.1 APPLIED PROCEDURES / LIMIT

Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(1)	Peak Output Power	0.125Watt or 21dBm	2400-2483.5	PASS

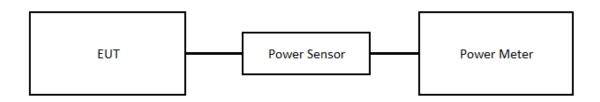
8.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW= 3MHz, VBW= 3MHz, Sweep time = Auto.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULTS

Please refer to the APPENDIX H.

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9 ANTENNA CONDUCTED SPURIOUS EMISSION

9.1 APPLIED PROCEDURES / LIMIT

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.

9.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW= 100KHz, VBW=100KHz, Sweep time = Auto.
- c. Offset=antenna gain+cable loss

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP

EUT SPECTRUM ANALYZER

9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

9.6 TEST RESULTS

Please refer to the APPENDIX I.

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10 LIST OF MEASURING EQUIPMENTS

	Radiated Emissions							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until		
1	Preamplifier	EMCI	EMC330N	980850	2023/9/6	2024/9/5		
2	Preamplifier	EMCI	EMC118A45SE	980819	2023/3/7	2024/3/6		
3	Pre-Amplifier	EMCI	EMC184045SE	980907	2023/9/21	2024/9/20		
4	Preamplifier	EMCI	EMC001340	980579	2023/9/6	2024/9/5		
5	Test Cable	EMCI	EMC104-SM-100 0	180809	2023/7/10	2024/7/9		
6	Test Cable	EMCI	EMC104-SM-SM- 3000	220322	2023/3/14	2024/3/13		
7	Test Cable	EMCI	EMC104-SM-SM- 7000	220324	2023/3/14	2024/3/13		
8	EXA Signal Analyzer	keysight	N9020B	MY57120120	2023/2/24	2024/2/23		
9	Loop Ant	Electro-Metrics	EMCI-LPA600	291	2023/9/12	2024/9/11		
10	Horn Antenna	RFSPIN	DRH18-E	211202A18EN	2023/5/12	2024/5/11		
11	Horn Ant	Schwarzbeck	BBHA 9170D	1136	2023/5/12	2024/5/11		
12	Log-bicon Antenna	Schwarzbeck	VULB9168	1369	2023/5/9	2024/5/8		
13	6dB Attenuator	EMCI	EMCI-N-6-06	AT-06001	2023/5/9	2024/5/8		
14	Test Cable	EMCI	EMC101G-KM-K M-3000	220329	2023/3/14	2024/3/13		
15	Test Cable	EMCI	EMC102-KM-KM- 1000	220327	2023/3/14	2024/3/13		
16	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A		

	Number of Hopping Frequency							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until		
1	Spectrum Analyzer	R&S	FSP 40	100129	2023/3/27	2024/3/26		

Average Time of Occupancy							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until	
1	Spectrum Analyzer	R&S	FSP 40	100129	2023/3/27	2024/3/26	

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	Hopping Channel Separation							
Iten	n Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until		
1	Spectrum Analyzer	R&S	FSP 40	100129	2023/3/27	2024/3/26		

	Bandwidth							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until		
1	Spectrum Analyzer	R&S	FSP 40	100129	2023/3/27	2024/3/26		

	Output Power							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until		
1	Power Meter	Anritsu	ML2495A	1128008	2023/5/12	2024/5/11		
2	Power Sensor	Anritsu	MA2411B	1126001	2023/5/12	2024/5/11		

Antenna conducted Spurious Emission										
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until				
1	Spectrum Analyzer	R&S	FSP 40	100129	2023/3/27	2024/3/26				

Remark: "N/A" denotes no model name, no serial no. or no calibration specified. All calibration period of equipment list is one year.

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44 FUT TEST BUOTO						
11 EUT TEST PHOTO						
Please refer to document Appendix No.: TP-2311T049-FCCP-1 (APPENDIX-TEST PHOTOS).						
12 EUT PHOTOS						
Please refer to document Appendix No.: EP-2311T049-1 (APPENDIX-EUT PHOTOS).						

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APPENDIX A	RADIATED EMISSIONS - 9 KHZ TO 30 MHZ

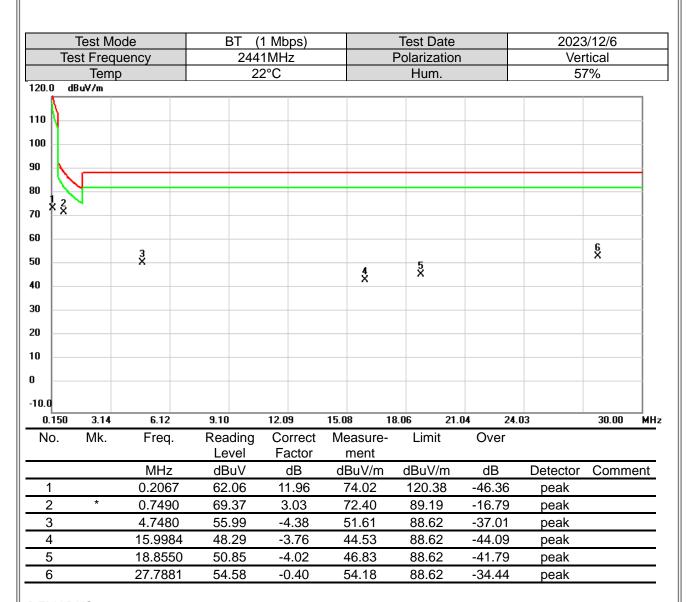
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Test Mode Test Frequency Temp			BT (1 Mbps)					Test Date				2023/12/6			
				2441MHz 22°C				Polarization					Vertical		
											Hum.		57%		
150.0 dE	BuV/m														_
40															
40	-	-													T
30															+
20										4					_
10															┪
00										+					\dashv
10			1							4					4
:0			X												
'O										+					1
0										+					\dashv
io															_
.															
10															T
30										+					\dashv
20.0															
0.009	0.02	0.04		0.05		0.07		0.08	0.	09	0.11	0.12		0.15	_ MH
No.	Mk.	Freq.		Read		Со	rrect	Me	asure-		Limit	Over			
				Lev			ctor		ment						
		MHz		dΒι			dB		BuV/m		BuV/m	dB	Detector	Comm	ent
1	*	0.0411		60.	43	25	5.50	8	35.93	1	134.41	-48.48	peak		

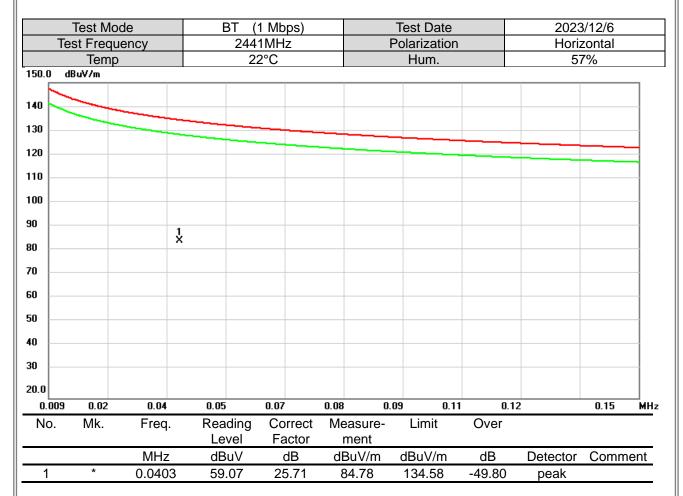
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





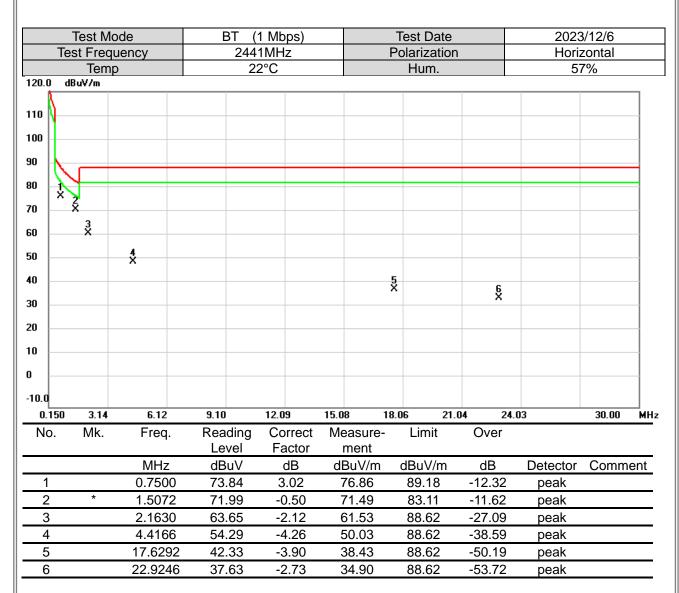
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





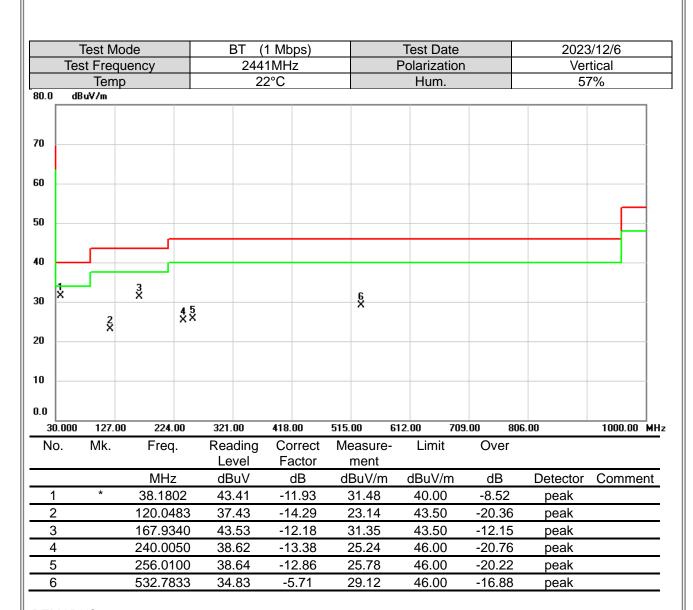
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



APPENDIX B	RADIATED EMISSIONS - 30 MHZ TO 1 GHZ

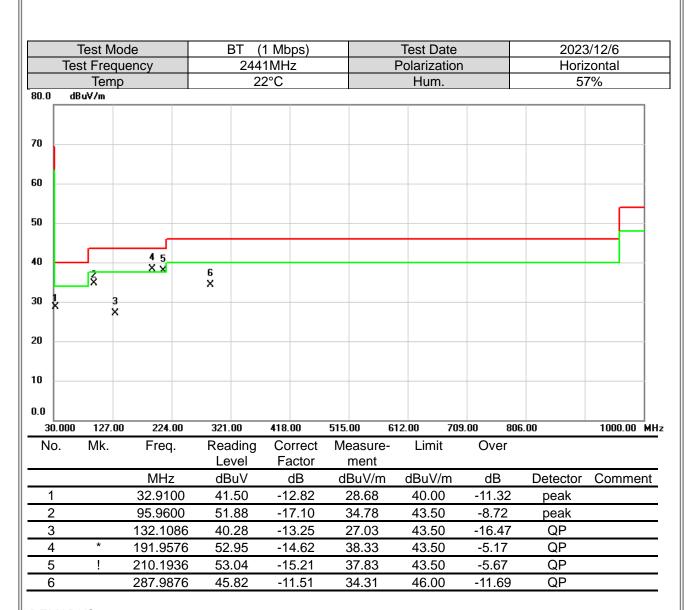
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- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





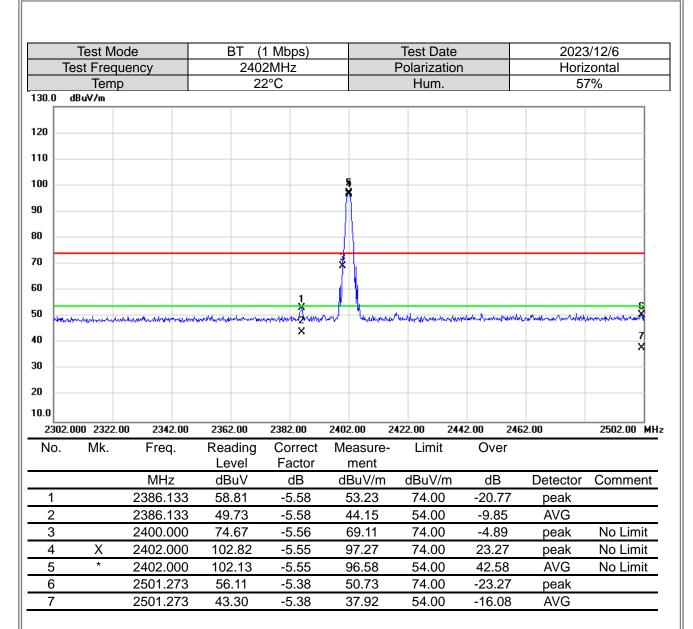
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



APPENDIX C RADIATED EMISSIONS - ABOVE 1 GHZ

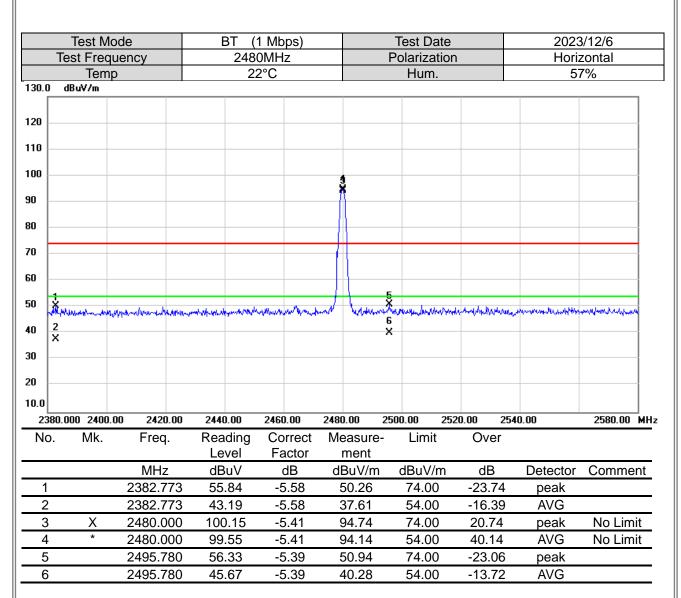
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- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



	Test Mod			(3 Mbps)		Test Date			3/12/6
Те	st Freque	ency		2MHz		Polarizatio	on		zontal
130.0 d	Temp BuV/m		2	2°C		Hum.		5	7%
130.0 0	IDUY/III								
120									
110									
100					<u>\$</u>				
90 —					Å				
80									
70					*				
60									
50				Millian was W 2 mm					add-company and
	haranterangianistik	والمراسود المراهدية والمراسود المراسود والمراسود والمراسود	washing was a second	MylvarvalyW2	howard holdshowada	Maring Ma	hailattifaanaan ladda an iyaa	akanin (proposition alian dayabila	
40				^					7 X
30									
20									
10.0									
2302.0	00 2322.00	2342.00	2362.00	2382.00	2402.00	2 4 22.00 2	442.00 246	S2.00	2502.00 M
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2386.120	56.71	-5.58	51.13	74.00	-22.87	peak	
2		2386.120	47.69	-5.58	42.11	54.00	-11.89	AVG	
3		2400.000	76.61	-5.56	71.05	74.00	-2.95	peak	No Limit
4	*	2402.020	98.80	-5.55	93.25	54.00	39.25	AVG	No Limit
5	Χ	2402.173	102.67	-5.55	97.12	74.00	23.12	peak	No Limit
6	·	2495.620	55.52	-5.39	50.13	74.00	-23.87	peak	
7		2495.620	43.25	-5.39	37.86	54.00	-16.14	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value Limit Value.



	Test Mo			3 Mbps)		Test Date			3/12/6
le	est Frequ			0MHz		Polarization)		zontal
130.0 d	Temp BuV/m		-2:	2°C		Hum.		51	7%
130.0	JD G 4 7 III								
120									
110 -									
100									
					3				
90					T)				
BO									
70									
60									
					- { }	- 5 X			
50 🌡	silly our observables and	agaberrayiyaharaharahyara	Mallanda, mak tapatah, mada	, manders of the Marketon	na man		gar-petro-sister, og storkelse steken be	Laceton de la companya	water you was Maria
10 2	sittyva polovidelega vid	and the second	Mallandamen by Minnada	mandent Marie	now however	5 X X 6 X	garpet and a proper desired an	Lincher Albanyan M	white was water 1999 and
40 2 X	h.M.prayedoridaber-vi	an sala sala sala sala sala sala sala sa	And have a grown that the constant	, marily after Mariena	not the same	hadaaadabadaana 6	gang Managang ng Sangan Ang Sangan Ang	an to show the same	white you want Maria
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40 2 X	hillynnyrdenskelegryd	ang palament ang alaman	Malland make depth make	was of the second	enter trademost	hadaaadabadaana 6	ggagar Wandaliya da Palaka ya Angaba Ang	Live Messager of the segment	when round Mari
40 2 X 30 —	Marchael	tagither in est each and an en	All house and the Alexander	, mare deposition to the second	rusus rusus	hadaaadabadaana 6	ganger and a finish of the second and the second a	surveyor and the second of the	and the second and the second
40 2 X 30 20	000 2400.0		2440.00	2460.00		6 X		0.00	2580.00 MH
40 2 X 30 20			2440.00 Reading	2460.00 Correct	2480.00 29 Measure-	6 X			
40 2 X 30 20 10.0	000 2400.0	0 2420.00 Freq.	2440.00 Reading Level	2460.00 Correct Factor	2480.00 29 Measure- ment	6 X 500.00 252 Limit	20.00 254 Over	0.00	2580.00 MH
2 X 80 20 20 0.0 2380.0 No.	000 2400.0	0 2420.00 Freq.	2440.00 Reading Level dBuV	2460.00 Correct Factor dB	2480.00 29 Measure- ment dBuV/m	6 X 500.00 252 Limit	20.00 254 Over dB	0.00 Detector	
2 X 80 0.0 2380.0 No.	000 2400.0	0 2420.00 Freq. MHz 2382.113	2440.00 Reading Level dBuV 55.12	2460.00 Correct Factor dB -5.58	2480.00 29 Measure- ment dBuV/m 49.54	6 X 500.00 252 Limit dBuV/m 74.00	20.00 254 Over dB -24.46	0.00 Detector peak	2580.00 MH
2 X 80 0.0 2380.0 No.	000 2400.0 Mk.	0 2420.00 Freq. MHz 2382.113 2382.113	2440.00 Reading Level dBuV 55.12 43.16	2460.00 Correct Factor dB -5.58 -5.58	2480.00 29 Measure- ment dBuV/m 49.54 37.58	66 X 500.00 252 Limit dBuV/m 74.00 54.00	20.00 254 Over dB -24.46 -16.42	Detector peak AVG	2580.00 MI
2 X 80 0 0.0 2380.0 No.	000 2400.0 Mk.	0 2420.00 Freq. MHz 2382.113 2382.113 2480.000	2440.00 Reading Level dBuV 55.12 43.16 99.88	2460.00 Correct Factor dB -5.58 -5.58 -5.41	2480.00 29 Measurement dBuV/m 49.54 37.58 94.47	66 X 500.00 252 Limit dBuV/m 74.00 54.00 74.00	20.00 254 Over dB -24.46 -16.42 20.47	Detector peak AVG peak	2580.00 MH Comment
2 X 800 200 0.0 2380.0 No.	000 2400.0 Mk.	0 2420.00 Freq. MHz 2382.113 2382.113 2480.000 2480.000	2440.00 Reading Level dBuV 55.12 43.16 99.88 96.45	2460.00 Correct Factor dB -5.58 -5.58 -5.41 -5.41	2480.00 29 Measurement dBuV/m 49.54 37.58 94.47 91.04	6 X 500.00 252 Limit dBuV/m 74.00 54.00 74.00 54.00	20.00 254 Over dB -24.46 -16.42 20.47 37.04	Detector peak AVG peak AVG	2580.00 MI
22 X 330 2380.0 No.	000 2400.0 Mk.	0 2420.00 Freq. MHz 2382.113 2382.113 2480.000	2440.00 Reading Level dBuV 55.12 43.16 99.88	2460.00 Correct Factor dB -5.58 -5.58 -5.41	2480.00 29 Measurement dBuV/m 49.54 37.58 94.47	66 X 500.00 252 Limit dBuV/m 74.00 54.00 74.00	20.00 254 Over dB -24.46 -16.42 20.47	Detector peak AVG peak	2580.00 MH Comment

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value Limit Value.



	Test M				1 Mbps)		Test Date			3/12/6
	Test Fred				2MHz		Polarizatio	n		tical
100.0	Tem	пр		2:	2°C		Hum.		57	7%
130.0	dBuV/m									
120										
10										
100										
90										
BO										
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50			1 X							
10 <u> </u>			2 2							
30			×							
20										
10.0										
	0.000 2700		00	6100.00	7800.00				00.00	18000.00 MF
No.	Mk.	Freq.		Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz		dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.00	0	44.08	0.50	44.58	74.00	-29.42	peak	
2	*	4804.00	0	31.82	0.50	32.32	54.00	-21.68	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test Mo			1 Mbps)		Test Date			3/12/6
Т	est Frequ			2MHz		Polarization	n		zontal
130.0	Temp dBuV/m)	2:	2°C		Hum.		57	7%
130.0	dBuv/m								
120									
110									
100									
90									
80									
70									
60									
50		1							
40		1 X							
30		2 X							
20									
10.0									
	.000 2700.0		6100.00	7800.00				00.00	18000.00 MHz
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	43.93	0.50	44.43	74.00	-29.57	peak	
2	*	4804.000	33.20	0.50	33.70	54.00	-20.30	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test M			ВТ		l Mbps)				Test Da				3/12/6
	Test Fred					1MHz			Р	olarizat				tical
	Ten	np			22	2°C				Hum.			57	7%
130.0	dBuV/m													
120														
10														
100														
90														
30														
'o														
io <u> </u>														
io			1 X											
10 <u> </u>														
30 <u> </u>			2 X											
20														
10.0														
).000 2700		0.00	6100.0		7800.00		0.00	112	00.00	12900.0		600.00	18000.00 MF
No.	Mk.	Fred	 .	Read Leve		Correct Factor		easure ment)-	Limit	(Over		
		MH	Z	dBu		dB		BuV/m)	dBuV/r	n	dB	Detector	Comment
1		4882.0	000	44.1	8	0.74	,	44.92		74.00	-:	29.08	peak	
2	*	4882.0	000	32.3	0	0.74		33.04		54.00	-:	20.96	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



7	Test M Test Fred				В		1 Mbp 1MHz					Test D Polariza					3/12/6 zontal	
	Ten		ПСУ				11VIПZ 2°С					Hun					<u>2011(a)</u> 7%	
130.0	dBuV/m																	_
120																		-
110																		_
100																		_
90 _																		-
80 _																		-
70																		
60																		\parallel
50				1 X														
40				2														-
30				X														
20																		
10.0																		
	.000 2700	0.00	4400		6100		7800.		9500			200.00		00.00		00.00	18000.0	0 MHz
No.	Mk.		Freq	•	Read Lev		Cor Fac	rect ctor		easui ment		Lim	it	Ove	er			
			MHz		dBı	uV	d	В	dl	3uV/ı	m	dBuV	/m	dE	}	Detector	Comm	ent
1			4882.0		44.		0.			15.65		74.0		-28.		peak		
2	*		4882.0	00	34.	54	0.	74	3	35.28	3	54.0	0	-18.	72	AVG		-

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test Mo			E		1 Mb					Test Da					3/12/6	
16	est Frequ					0MH	Z			Р	olariza					tical	
130.0	Temp					2°C					Hum.	•			51	7%	
130.0	aba 47 m																٦
120																	
110																	
110																	
100 -																	-
90																	-
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30			X														-
20																	
10.0																	
	000 2700.0	0 4400	.00	6100	0.00	7800	0.00	9500	0.00	112	00.00	1290	00.00	1460	0.00	18000.00	_ D M H
No.	Mk.	Freq			ding		rrect		easure	:-	Limit		Ove	r			
				Le			actor		ment								
		MHz		dB			dB		3uV/m	l	dBuV/		dB		Detector	Comme	ent
1		4960.0		44.			.99		15.00		74.00		-29.0		peak		
2	*	4960.0	00	32.	.34	0	.99	3	33.33		54.00)	-20.6	67	AVG		

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test Mo			(1 Mbps)		Test Date			3/12/6
Т	est Frequ			0MHz		Polarization	n		zontal
100.0	Temp)	2	2°C		Hum.		57	7%
130.0	dBuV/m								
120									
110									
100									
90									
80									
70									
60									
50		1	k						
40									
30		5	2						
20									
10.0									
	.000 2700.0			7800.00				00.00	18000.00 MHz
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000		0.99	45.19	74.00	-28.81	peak	
2	*	4960.000	32.62	0.99	33.61	54.00	-20.39	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test M	ode		В	T (3 Mbps)			1	Test Da	ate		2023	3/12/6	
Т	est Fred	luency			2402	2MHz				Р	olariza				tical	
	Tem	р			22	2°C					Hum.			57	7%	
130.0	dBuV/m															1
120																
110																
100																
90																
80 —																
70																
60																
50			1 X													1
40			2													
30			x													
20																
10.0																
	.000 2700			6100.		7800.00		500.			00.00			600.00	18000.00	MHz
No.	Mk.	Fred	.	Read Lev		Corre Facto			asure nent	-	Limit		Over			
		MH	<u>z</u>	dΒι	٧L	dB		dΒ	uV/m		dBuV/ı	m	dB	Detector	Commer	nt
1		4804.0		44.		0.50			5.24		74.00		-28.76	peak	-	
2	*	4804.0	000	31.	80	0.50)	32	2.30		54.00)	-21.70	AVG		

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test Mo			E		3 Mbps)				est Da				3/12/6
Te	est Freq					2MHz			Р	olariza				zontal
	Tem	р			2:	2°C				Hum			57	7%
130.0 d	dBuV/m													
120														
110														
100 -														
90														
во														
70														
SO														
50			1 X											
10 <u> </u>														
30			2 X											
20														
10.0														
	000 2700.			6100		7800.00	9500			00.00	1290		00.00	18000.00 MI
No.	Mk.	Fred	.	Rea Le	ding vel	Correct Factor		easure ment	-	Limit		Over		
		MHz	7	dB	uV	dB		BuV/m		dBuV/	m	dB	Detector	Comment
1		4804.0	000	43	.95	0.50	4	44.45		74.00)	-29.55	peak	
2	*	4804.0	000	32	.07	0.50	,	32.57		54.00)	-21.43	AVG	•

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test M			E		3 Mbps)				est Da				3/12/6
Te	est Freq					1MHz			Р	olariza				tical
	Tem	р			2	2°C				Hum			57	7%
130.0	dBuV/m													
120														
110														
100 -														
90														
80														
70														
SO														
50			1 ×											
10 <u> </u>														
30			2 X											
20 —														
10.0														
	000 2700.		00.00	6100		7800.00	9500			00.00	1290		600.00	18000.00 MI
No.	Mk.	Fre	eq.		ding vel	Correct Factor		easure ment	-	Limit	•	Over		
		MH	lz		uV	dB		BuV/m		dBuV/	m	dB	Detector	Comment
1		4882	.000	43	.82	0.74	4	44.56		74.00)	-29.44	peak	
2	*	4882	.000	32	.32	0.74	- (33.06		54.00)	-20.94	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test M			Е		3 Mb					Test Da					3/12/6	
	Test Fred					1MH:	<u>Z</u>			Р	olariza					zontal	
120.0	Ten	пр			2:	2°C					Hum.				5	7%	
130.0	dBuV/m																\neg
120																	-
10																	-
100																	4
30 <u> </u>																	4
30																	4
'o																	_
io																	4
io			1 X														\exists
10 <u> </u>																	4
30			2 X														
20																	
10.0																	
).000 2700		00.00	6100		7800		9500).00	112	00.00	1290		14600	.00	18000.0	00 MF
No.	Mk.	Fre	eq.	Read Lev			rrect ctor		easure ment) -	Limit	•	Ove	r			
		MH	lz	dB		(βB	dl	3uV/n	1	dBuV/ı	m	dB	[Detector	Comm	ent
1		4882	.000	43.	83	0	.74		14.57		74.00)	-29.4	3	peak		
2	*	4882	.000	32.	62	0	.74	- (33.36		54.00)	-20.6	64	AVG		

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test M			ВТ		Mbps)				Test Da				3/12/6
Te	est Freq					MHz			F	<u>Polariza</u>				tical
120.0	Tem dBuV/m	р			22	°C				Hum.			57	7%
130.0	dBu√/m													
120														
110 -														
100														
90 -														
BO														
70														
60 —														
50			1 ×											
10 <u> </u>														
80			2 X											
20														
10.0														
	000 2700.		00.00	6100.0		7800.00	9500			200.00			600.00	18000.00 M
No.	Mk.	Fre	q.	Readi Leve		Correct Factor		easur ment	9-	Limit	:	Over		
		MH	z	dBu\		dB		3uV/n	n	dBuV/	m	dB	Detector	Comment
1		4960.	000	44.02	2	0.99	4	45.01		74.00)	-28.99	peak	
2	*	4960.	000	32.38	3	0.99	- ;	33.37		54.00)	-20.63	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test Mo			E		3 Mb					Test Da					3/12/6	
I e	est Frequ					OMH	Z			<u> </u>	olariza					zontal	
130.0	Temp				2	2°C					Hum				5	7%	
130.0	OBUY/M																7
120																	
110																	
100																	1
90 -																	\dashv
во																	-
70																	-
60 <u> </u>																	-
50			_														-
40 L			1 X														
			2 X														
30																	1
20 —																	+
10.0																	
	000 2700.0			6100		7800		9500			200.00		00.00	1460	0.00	18000.0	D MH
No.	Mk.	Freq.	•	Rea Le	ding vel		rrect		easure ment) -	Limit	İ	Ove	r			
		MHz		dB	uV		dB		BuV/n	1	dBuV/	m	dB		Detector	Comme	ent
1		4960.0		44			.99		45.13		74.00		-28.8		peak		
2	*	4960.0	00	32	.27	0	.99	3	33.26		54.00)	-20.7	7 4	AVG		

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



	Test Mod	de		E		1 Mbps)				Test Da				3/12/6
To	est Frequ	ency				1MHz			Р	olariza				tical
	Temp				2:	2°C				Hum			57	7%
30.0	dBuV/m													
20														
110														
00														
o														
0														
o ⊨														
o														
o <u> </u>	1 X													
0	2 X													
0														
0														
.0														
18000	0.000 20200.0	00 2240	0.00	2460	00.00	26800.00	290	00.00	312	00.00	3340	00.00 356	500.00	40000.00 MI
No.	Mk.	Freq.			ding vel	Correct Factor		easure ment	-	Limit	t	Over		
		MHz			uV	dB		BuV/m		dBuV/	m	dB	Detector	Comment
1		19528.	00	54	.83	-8.28		46.55		74.00)	-27.45	peak	
2	*	19528.	00	41	.11	-8.28	- (32.83		54.00)	-21.17	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



_	Test Mod			(1 Mbps)		Test Date			3/12/6
T	est Freque	ency		1MHz		Polarization	n		zontal
130.0	Temp dBuV/m		2	2°C		Hum.		57	7%
130.0	abuv/m								
120									
110									
100									
90									
80									
70 🗀									
50 <u> </u>									
50	-								
10	*								
30	2 X								
20									
10									
0.0									
	0.000 20200.0			26800.00	29000.00			00.00	40000.00 MH
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure ment	- Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		19528.00	54.07	-8.28	45.79	74.00	-28.21	peak	20
2	*	19528.00	41.71	-8.28	33.43	54.00	-20.57	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



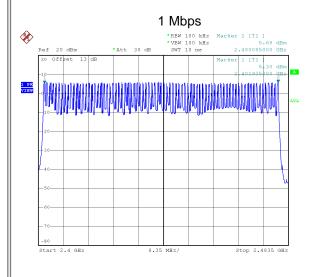
	1.CPORT 140:: BTE 1 COT 1 251110+3
APPENDIX D	NUMBER OF HOPPING CHANNEL

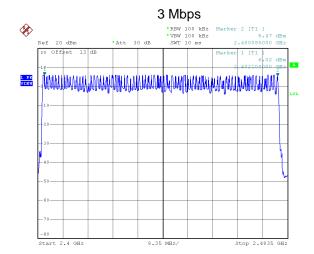
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Test Mode 1/3Mbps

Test Mode	Number of Hopping Channel	≥ Limit	Test Result
1 Mbps	79	15	Pass
3 Mbps	79	15	Pass





Date: 1.DEC.2023 19:43:33 Date: 1.DEC.2023 20:17:27



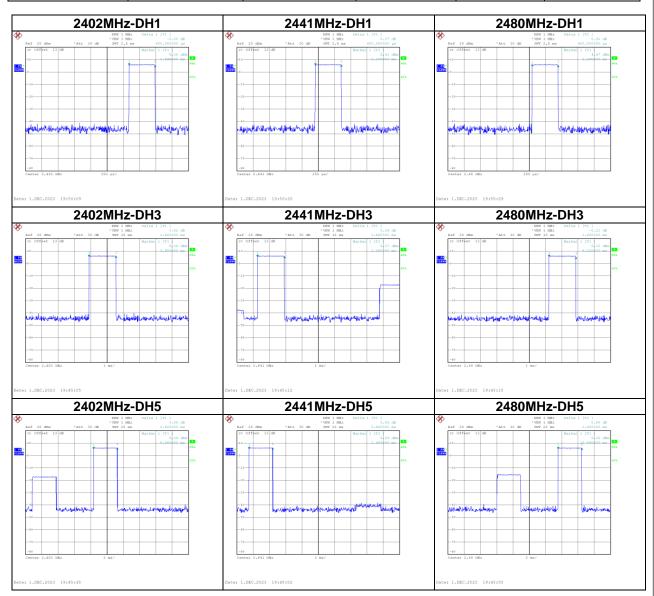
APPENDIX E AVERAGE TIME OF OCCUPANCY

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Test Mode: 1Mbps

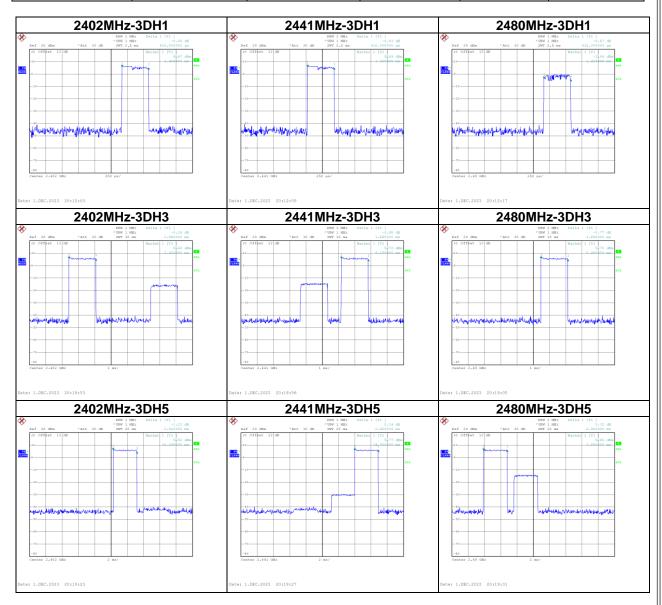
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH5	2402	2.9200	0.3115	0.4000	Pass
DH3	2402	1.6600	0.2656	0.4000	Pass
DH1	2402	0.4000	0.1280	0.4000	Pass
DH5	2441	2.9200	0.3115	0.4000	Pass
DH3	2441	1.6600	0.2656	0.4000	Pass
DH1	2441	0.4000	0.1280	0.4000	Pass
DH5	2480	2.9200	0.3115	0.4000	Pass
DH3	2480	1.6600	0.2656	0.4000	Pass
DH1	2480	0.4000	0.1280	0.4000	Pass





Test Mode: 3Mbps

Data Packet	Frequency	Pulse Duration(ms)	Dwell Time(s)	Limits(s)	Test Result
3DH5	2402	2.9200	0.3115	0.4000	Pass
3DH3	2402	1.6600	0.2656	0.4000	Pass
3DH1	2402	0.4100	0.1312	0.4000	Pass
3DH5	2441	2.9200	0.3115	0.4000	Pass
3DH3	2441	1.6600	0.2656	0.4000	Pass
3DH1	2441	0.4100	0.1312	0.4000	Pass
3DH5	2480	2.9200	0.3115	0.4000	Pass
3DH3	2480	1.6600	0.2656	0.4000	Pass
3DH1	2480	0.4150	0.1328	0.4000	Pass



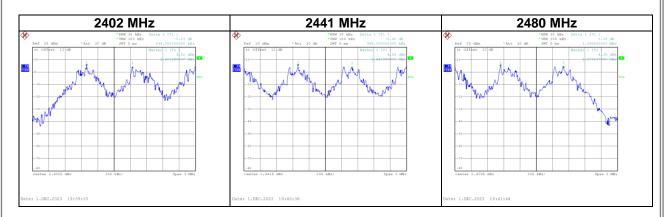


APPENDIX F	HOPPING CHANNEL SEPARATION MEASUREMENT

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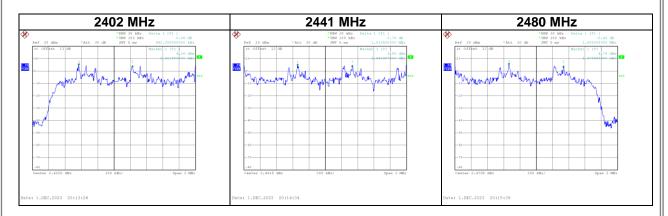
Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	0.844	0.626	Pass
2441	0.996	0.634	Pass
2480	1.167	0.625	Pass





Test Mode : Hopping on _3Mbps

Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	0.992	0.823	Pass
2441	1.011	0.839	Pass
2480	1.008	0.837	Pass



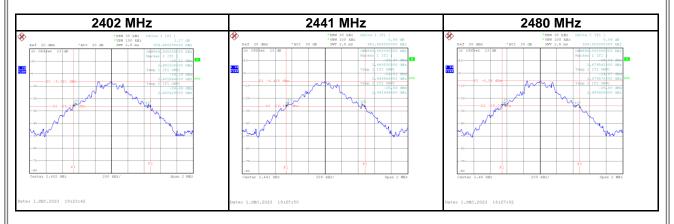
3 T L		Report No.: BTL-FCCP-1-2311T049
		Report No.: BTL-FCCF-1-23111049
	APPENDIX G	BANDWIDTH

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Took Modele .	ANAL
lest Mode :	1Mbps

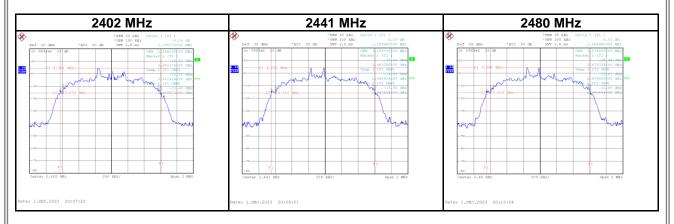
Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	0.939	0.864	Pass
2441	0.951	0.888	Pass
2480	0.938	0.856	Pass





Took Mode .	2Mbaa
lest Mode :	3Mbps

Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	1.235	1.156	Pass
2441	1.259	1.180	Pass
2480	1.256	1.176	Pass





APPENDIX H	OUTPUT POWER	

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2480

-4.23

Report No.: BTL-FCCP-1-2311T049

0.1259

Pass

Test Mode :	1Mbps		Tested	d Date 2	2023/12/1
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-4.22	0.0004	21.00	0.1259	Pass
2441	-4.39	0.0004	21.00	0.1259	Pass

21.00

Test Mode :	2Mbps	Tested Date	2023/12/1

0.0004

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-4.30	0.0004	21.00	0.1259	Pass
2441	-4.51	0.0004	21.00	0.1259	Pass
2480	-4.55	0.0004	21.00	0.1259	Pass

Test Mode: 3Mbps	Tested Date 2023/12/1
------------------	-----------------------

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-4.20	0.0004	21.00	0.1259	Pass
2441	-4.09	0.0004	21.00	0.1259	Pass
2480	-4.10	0.0004	21.00	0.1259	Pass

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APPENDIX I	ANTENNA CONDUCTED SPURIOUS EMISSION

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