



FCC Radio Test Report

FCC ID: UFOOPN4000I

Report No. : BTL-FCCP-1-2106T008
Equipment : Bluetooth Barcode Scanner

Model Name : OPN-4000i Brand Name : OPTICON

Applicant: OPTOELECTRONICS Co., Ltd.

Address : 4-12-17, Tsukagoshi, Warabi-shi, Saitama Pref., 335-0002 Japan

Manufacturer : OPTOELECTRONICS Co., Ltd.

Address : 4-12-17, Tsukagoshi, Warabi-shi, Saitama Pref., 335-0002 Japan

Radio Function : Bluetooth EDR

FCC Rule Part(s) : FCC Part15, Subpart C (15.247)

Measurement Procedure(s) : ANSI C63.10-2013

Date of Receipt : 2014/2/27

2021/6/9

Date of Test : 2014/2/27 ~ 2014/3/31

2021/6/9~ 2021/9/28, 2022/2/15

Issued Date : 2022/3/1

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

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Declaration

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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.

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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-1-2106T008	R00	Original Report.	2021/10/28	Invalid
BTL-FCCP-1-2106T008	R01	Revised Typo.	2022/2/18	Invalid
BTL-FCCP-1-2106T008		Revised report to address TCB's comments.	2022/3/1	Valid

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SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

FCC Part 15, Subpart C (15.247)							
Standard(s) Section	Description	Test Result	Judgement	Remark			
15.207	AC Power Line Conducted Emissions	APPENDIX A	Pass				
15.205 15.209 15.247(d)	Radiated Emissions	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:

- (1) "N/A" denotes test is not applicable in this Test Report.(2) The report format version is TP.1.1.1.

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1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan The test sites and facilities are covered under FCC RN: 674415 and DN: TW0659.

□ CB08 □ CB11 □ CB15 □ CB16

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 95 %. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 \mathbf{U}_{cispr} requirement.

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U (dB)
C05	CISPR	150 kHz ~ 30 MHz	3.44

B. 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
CB15	1 GHz ~ 6 GHz	5.21
CB15	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

C. Conducted test:

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.

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1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Environment Condition	Test Voltage	Tested by
AC Power Line Conducted Emissions	22 °C, 56 %	AC 120V	Paul Shen
Radiated emissions below 1 GHz	22 °C, 54 %	AC 120V	Vincent Lee
Radiated emissions above 1 GHz	22 °C, 54 %	AC 120V	Vincent Lee
Number of Hopping Frequency	26 °C, 60 %	AC 120V	Josh Lin
Average Time of Occupancy	26 °C, 60 %	AC 120V	Josh Lin
Hopping Channel Separation	26 °C, 60 %	AC 120V	Josh Lin
Bandwidth	26 °C, 60 %	AC 120V	Josh Lin
Output Power	25.9 °C, 46 %	AC 120V	Paul Shen
Antenna conducted Spurious Emission	26 °C, 60 %	AC 120V	Josh Lin

1.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

Test Software		CI	ИD	
Modulation Mode	2402 MHz	2441 MHz	2480 MHz	Data Rate
GFSK	0	2	8	1 Mbps
π/4-DQPSK	8	8	8	2 Mbps
8DPSK	8	8	8	3 Mbps

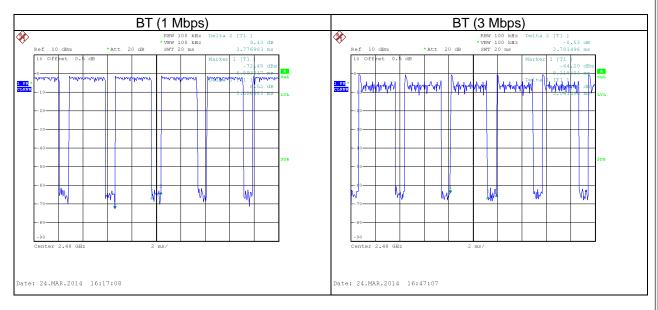
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1.5 DUTY CYCLE

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
iviode	(ms)	(ON)	(ms)	(ms)	(%)	(dB)
BT (1 Mbps)	3.056	1	3.056	3.776	80.93%	0.92
BT (3 Mbps)	3.061	1	3.061	3.781	80.96%	0.92





2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	Bluetooth Barcode Scanner
Model Name	OPN-4000i
Brand Name	OPTICON
Model Difference	N/A
Power Source	#1 Supplied from USB port. #2 Supplied from battery.
Power Rating	#1 I/P: DC 5V #2 I/P: DC 3.7V, 600mAh(Li-ion)
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
Output Power Max.	1 Mbps: -0.89 dBm (0.0008W) 2 Mbps: -0.62 dBm (0.0009W) 3 Mbps: -0.62 dBm (0.0009W)
Test Model	OPN-4000i
Sample Status	Engineering Sample
EUT Modification(s)	N/A

NOTE:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- (2) This is a supplement report of NEI-FCCP-1-1402201 report. The differences compared with original report are changed antenna and battery model.

 After evaluated, the changes with respect to the original one, only AC power line conducted emissions, radiated emissions and output power tests need to be verified.

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(3) Channel List:

Channel	Frequency	Channel	Frequency	Channel	Frequency
	(MHz)		(MHz)		(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		

(4) Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	OPTOELECTRO NICS CO., LTD.	2.4G PCB Antenna	PCB Layout	N/A	-0.86

2.2 TEST MODES

Test Items	Test mode	Channel	Note
AC power line conducted emissions	Normal/Idle	-	-
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
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.

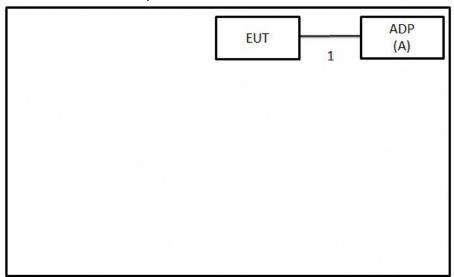
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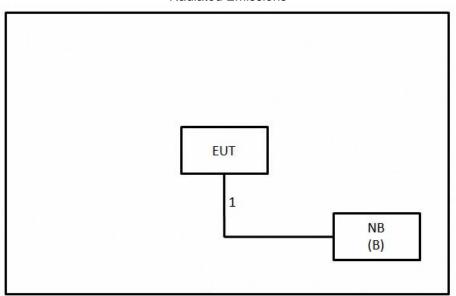
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

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

AC power line conducted emissions



Radiated Emissions



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
Α	Adapter	GARMIN	ADP-58W	N/A	Furnished by test lab.
В	NB	Acer	MS2351	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	1m	USB Cable	Supplied by test requester



3 AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency	Limit (dBµV)		
(MHz)	Quasi-peak	Average	
0.15 - 0.5	66 - 56 *	56 - 46 *	
0.50 - 5.0	56	46	
5.0 - 30.0	60	50	

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)

Margin Level = Measurement Value - Limit Value

Calculation example:

Reading Level		Correct Factor		Measurement Value
38.22	+	3.45	=	41.67

Measurement Value		Limit Value		Margin Level
41.67	-	60	=	-18.33

The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
 - All other support equipment were powered from an additional LISN(s).
 - The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle to keep the cable above 40 cm.
- c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.
 - The end of the cable will be terminated, using the correct terminating impedance.
 - The overall length shall not exceed 1 m.
- d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
- e. For the actual test configuration, please refer to the related Item EUT TEST PHOTO.

NOTE:

- (1) In the results, each reading is marked as Peak, QP or AVG per the detector used. BW=9 kHz (6 dB Bandwidth)
- (2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

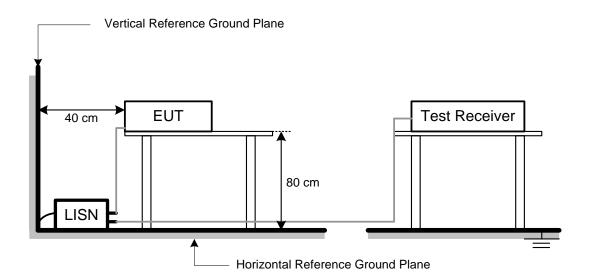
3.3 DEVIATION FROM TEST STANDARD

No deviation.

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3.4 TEST SETUP



3.5 TEST RESULT

Please refer to the APPENDIX A.



4 RADIATED EMISSIONS TEST

4.1 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	
(IVITIZ)	Peak	Average	(meters)
Above 1000	74	54	3

NOTE:

- (1) The limit for radiated test was performed according to FCC 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		Correct Factor		Measurement Value
35.45	+	-11.37	=	24.08

Measurement Value		Limit Value		Margin Level
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

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		

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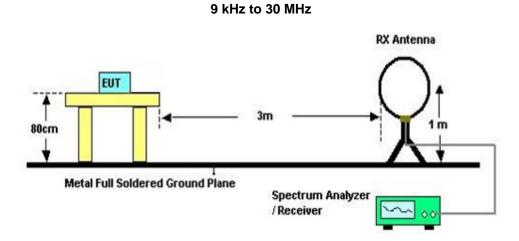
4.2 TEST PROCEDURE

- 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.

4.3 DEVIATION FROM TEST STANDARD

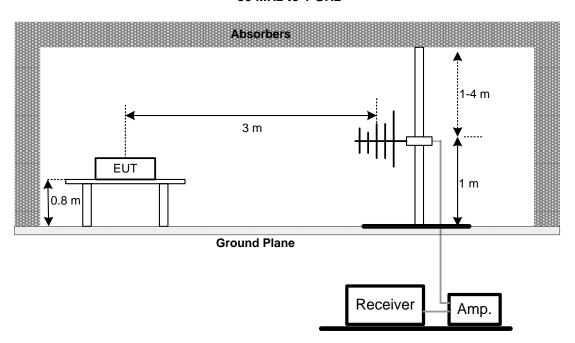
No deviation.

4.4 TEST SETUP

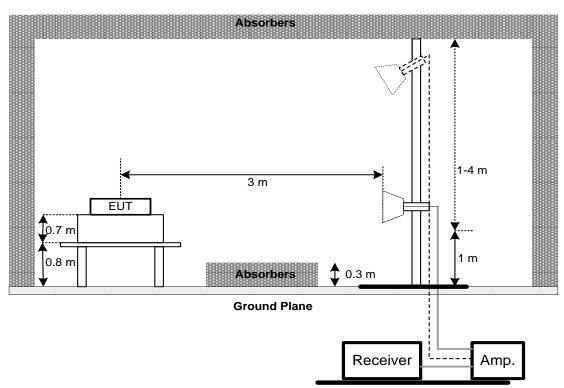




30 MHz to 1 GHz



Above 1 GHz



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.



4.6 TEST RESULT - BELOW 30 MHZ

There were no emissions found below 30 MHz within 20 dB of the limit.

4.7 TEST RESULT - 30 MHZ TO 1 GHZ

Please refer to the APPENDIX B.

4.8 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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5 NUMBER OF HOPPING CHANNEL

5.1 APPLIED PROCEDURES

FCC Part15 (15.247) , Subpart C			
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	

5.2 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.

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 D.

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AVERAGE TIME OF OCCUPANCY

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section Test Item Limit Frequency Range (MHz) Result				
15.247(a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

6.2 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 Non-AFH Mode (79 Channel):

DH1 Time Solt: Reading * (1600/6)/79 * (0.4 * 79)

DH3 Time Solt: Reading * (1600/6)/79 * (0.4 * 79)

DH5 Time Solt: Reading * (1600/6)/79 * (0.4 * 79)

For AFH Mode (20 Channel):

DH1 Time Solt: Reading * (800/6)/20 * (0.4 * 20)

DH3 Time Solt: Reading * (800/6)/20 * (0.4 * 20) DH5 Time Solt: Reading * (800/6)/20 * (0.4 * 20)

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

6.5 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.

6.6 TEST RESULTS

Please refer to the APPENDIX E.

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7 Hopping Channel Separation Measurement

7.1 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

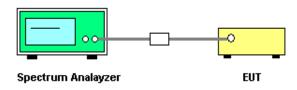
7.2 TEST PROCEDURE

- 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

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 TEST RESULTS

Please refer to the APPENDIX F.

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8 BANDWIDTH TEST

8.1 APPLIED PROCEDURES

	FCC Part15 (15.247), Subpart C	
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		

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= 30KHz, VBW=100KHz, Sweep Time = Auto.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP

EUT	SPECTRUM	
	ANALYZER	

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 G.

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9 OUTPUT POWER TEST

9.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C				
Section Test Item Limit Frequency Range (MHz) Result				Result
15.247(b)(1)	Peak Output Power	0.125Watt or 21dBm	2400-2483.5	PASS

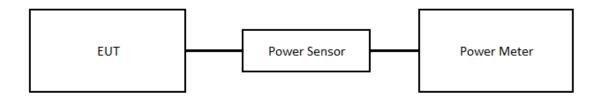
9.2 TEST PROCEDURE

- 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= 3MHz, VBW= 3MHz, Sweep time = Auto.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



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 H.

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10 ANTENNA CONDUCTED SPURIOUS EMISSION

10.1 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.

10.2 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

10.3 DEVIATION FROM STANDARD

No deviation.

10.4 TEST SETUP

EUT SPECTRUM ANALYZER

10.5 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.

10.6 TEST RESULTS

Please refer to the APPENDIX I.

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11 LIST OF MEASURING EQUIPMENTS

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	TWO-LINE V-NETWORK	R&S	ENV216	101339	2021/3/10	2022/3/9
2	Test Cable	EMCI	EMCRG58-BM-B M-9000	210501	2021/5/3	2022/5/2
3	EMI Test Receiver	R&S	ESR 7	101433	2020/12/11	2021/12/10
4	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

	Radiated Emissions									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until				
1	Preamplifier	EMCI	EMC02325B	980217	2021/4/8	2022/4/7				
2	Preamplifier	EMCI	EMC012645B	980267	2021/4/8	2022/4/7				
3	Preamplifier	EMCI	EMC001340	980555	2021/4/8	2022/4/7				
4	Test Cable	EMCI	EMC-SM-SM-100 0	180809	2021/4/8	2022/4/7				
5	Test Cable	EMCI	EMC104-SM-SM- 3000	151205	2021/4/8	2022/4/7				
6	Test Cable	EMCI	EMC-SM-SM-700 0	180408	2021/4/8	2022/4/7				
7	MXE EMI Receiver	Agilent	N9038A	MY554200087	2021/5/27	2022/5/26				
8	Signal Analyzer	Agilent	N9010A	MY56480554	2021/8/25	2022/8/24				
9	Loop Ant	Electro-Metrics	EMCI-LPA600	274	2021/6/1	2022/5/31				
10	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2021/6/2	2022/6/1				
11	Horn Ant	Schwarzbeck	BBHA 9170	BBHA 9170340	2021/7/9	2022/7/8				
12	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	VULB 9168 VULB 9168-352		2022/8/10				
13	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0625	2021/8/11	2022/8/10				
14	Measurement		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 Until					
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014					

	Average Time of Occupancy									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Until					
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014					

	Hopping Channel Separation									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Until					
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014					



Bandwidth									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Until				
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014				

Output Power								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until		
1	Power Meter	Anritsu	ML2487A	6K00004714	2021/8/15	2022/8/14		
2	Power Sensor	Anritsu	MA2491A	034138	2021/8/15	2022/8/14		

	Antenna conducted Spurious Emission								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Until				
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014				

Antenna conducted Spurious Emission(Hopping)								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until		
1	Power Meter	Anritsu	ML2487A	6K00004714	2021/8/15	2022/8/14		

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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12 EUT TEST PHOTO							
Please refer to document Appendix No.: TP-2106T008-FCCP-1 (APPENDIX-TEST PHOTOS).							
13 EUT PHOTOS							
Please refer to document Appendix No.: EP-2106T008-4 (APPENDIX-EUT PHOTOS).							

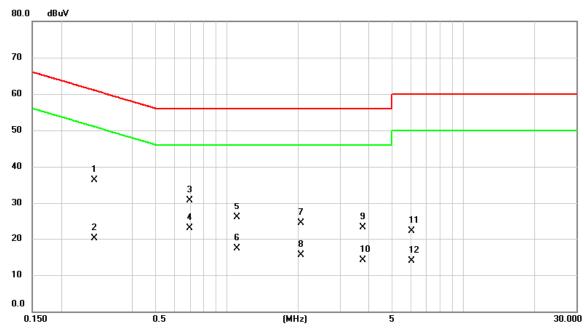
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APPENDIX A	AC POWER LINE CONDUCTED EMISSIONS

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Test Mode	Normal	Tested Date	2021/7/16
Test Frequency	-	Phase	Line

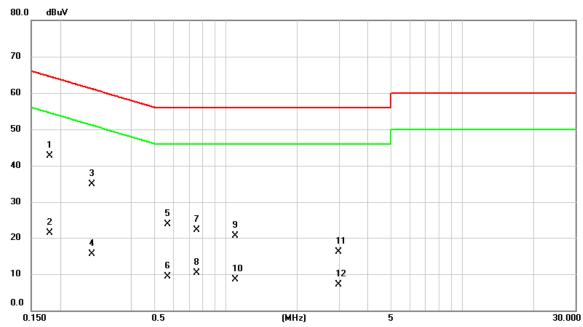


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBu∨	dB	dBu∨	dBu∨	dB	Detector	Comment
1		0.2737	26.65	9.71	36.36	61.00	-24.64	QP	
2		0.2737	10.32	9.71	20.03	51.00	-30.97	AVG	
3		0.6967	21.03	9.71	30.74	56.00	-25.26	QP	
4	*	0.6967	13.20	9.71	22.91	46.00	-23.09	AVG	
5		1.1017	16.27	9.72	25.99	56.00	-30.01	QР	
6		1.1017	7.56	9.72	17.28	46.00	-28.72	AVG	
7		2.0558	14.45	9.76	24.21	56.00	-31.79	QP	
8		2.0558	5.69	9.76	15.45	46.00	-30.55	AVG	
9		3.7815	13.27	9.87	23.14	56.00	-32.86	QP	
10		3.7815	4.18	9.87	14.05	46.00	-31.95	AVG	
11		6.0473	12.19	10.00	22.19	60.00	-37.81	QР	
12		6.0473	3.94	10.00	13.94	50.00	-36.06	AVG	

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



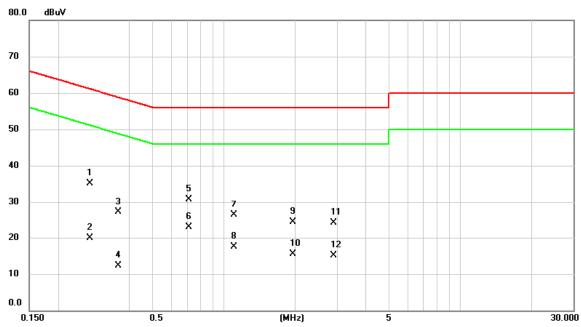
Test Mode	Normal	Tested Date	2021/7/16
Test Frequency	-	Phase	Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBu∨	dB	dBu∨	dBu∨	dB	Detector	Comment
1	*	0.1793	32.98	9.71	42.69	64.52	-21.83	QР	
2		0.1793	11.69	9.71	21.40	54.52	-33.12	AVG	
3		0.2714	25.27	9.71	34.98	61.07	-26.09	QP	
4		0.2714	5.71	9.71	15.42	51.07	-35.65	AVG	
5		0.5662	14.02	9.71	23.73	56.00	-32.27	QP	
6		0.5662	-0.32	9.71	9.39	46.00	-36.61	AVG	
7		0.7552	12.45	9.73	22.18	56.00	-33.82	QP	
8		0.7552	0.50	9.73	10.23	46.00	-35.77	AVG	
9		1.0950	10.68	9.73	20.41	56.00	-35.59	QP	
10		1.0950	-1.13	9.73	8.60	46.00	-37.40	AVG	
11		2.9850	6.34	9.79	16.13	56.00	-39.87	QP	
12		2.9850	-2.63	9.79	7.16	46.00	-38.84	AVG	

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

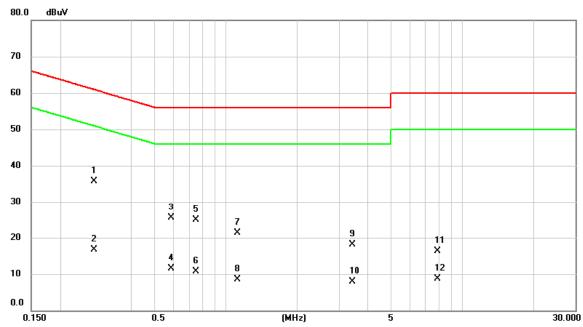
Test Mode	Idle	Tested Date	2021/7/16
Test Frequency	-	Phase	Line



No. M	1k. Fred	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBu∀	dB	dBu∨	dBu∨	dB	Detector	Comment
1	0.271	4 25.44	9.71	35.15	61.07	-25.92	QР	
2	0.271	4 10.25	9.71	19.96	51.07	-31.11	AVG	
3	0.359	2 17.38	9.70	27.08	58.75	-31.67	QP	
4	0.359:	2 2.69	9.70	12.39	48.75	-36.36	AVG	
5	0.712	5 20.97	9.71	30.68	56.00	-25.32	QР	
6 *	0.712	5 13.15	9.71	22.86	46.00	-23.14	AVG	
7	1.101	7 16.54	9.72	26.26	56.00	-29.74	QP	
8	1.101	7 7.79	9.72	17.51	46.00	-28.49	AVG	
9	1.952	3 14.62	9.76	24.38	56.00	-31.62	QP	
10	1.952	3 5.82	9.76	15.58	46.00	-30.42	AVG	
11	2.906	3 14.39	9.79	24.18	56.00	-31.82	QP	
12	2.906	3 5.27	9.79	15.06	46.00	-30.94	AVG	

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

Test Mode	Idle	Tested Date	2021/7/16
Test Frequency	-	Phase	Neutral



			Reading	Correct	Measure-				
No.	Mk.	Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBu∀	dB	dBu∨	dBu∨	dB	Detector	Comment
1	*	0.2760	26.02	9.71	35.73	60.94	-25.21	QР	
2		0.2760	7.05	9.71	16.76	50.94	-34.18	AVG	
3		0.5887	15.81	9.71	25.52	56.00	-30.48	QP	
4		0.5887	1.75	9.71	11.46	46.00	-34.54	AVG	
5		0.7462	15.21	9.72	24.93	56.00	-31.07	QP	
6		0.7462	1.03	9.72	10.75	46.00	-35.25	AVG	
7		1.1174	11.67	9.73	21.40	56.00	-34.60	QP	
8		1.1174	-1.16	9.73	8.57	46.00	-37.43	AVG	
9		3.4058	8.23	9.82	18.05	56.00	-37.95	QP	
10		3.4058	-1.86	9.82	7.96	46.00	-38.04	AVG	
11		7.8765	6.14	10.07	16.21	60.00	-43.79	QP	
12		7.8765	-1.29	10.07	8.78	50.00	-41.22	AVG	

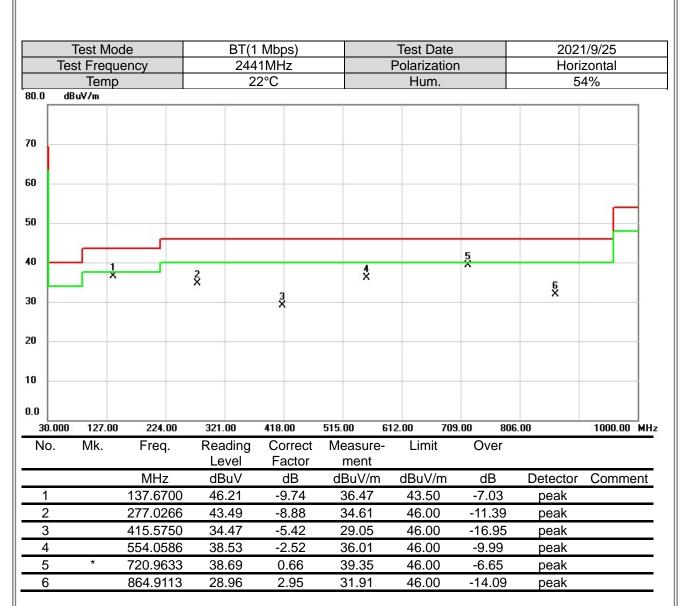
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



APPENDIX B	RADIATED EMISSIONS - 30 MHZ TO 1 GHZ

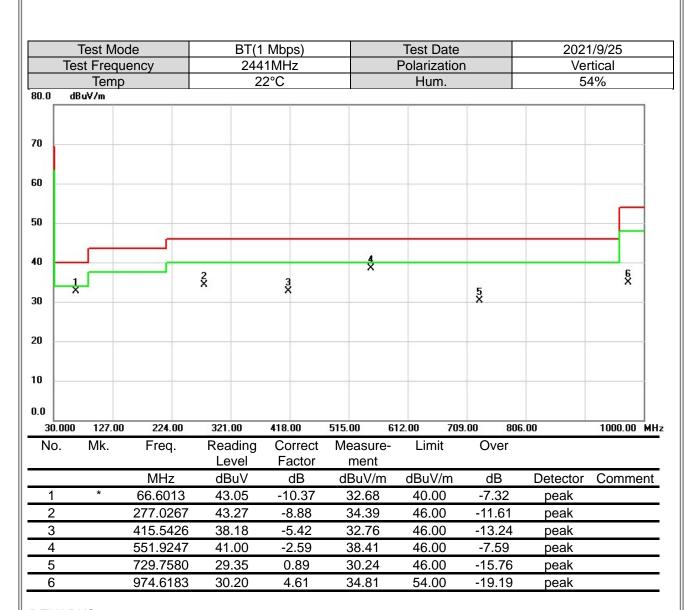
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- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





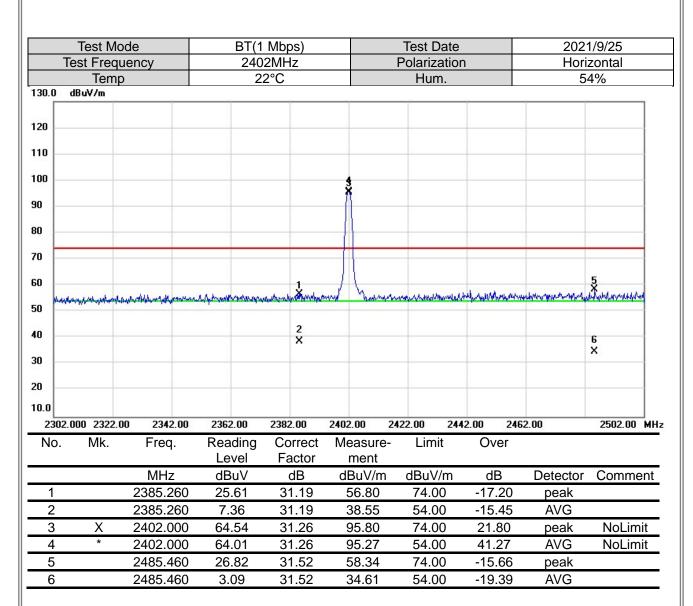
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



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.



	est Mo			Mbps)		Test Date			1/9/25
Tes	t Frequ			0MHz		Polarization	n		zontal
	Temp)	2	2°C		Hum.		54	4%
30.0 dB	uV/m							-	
20									
0				- 10			-		
0					.				
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1_1_					11	5			
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<u> </u>					8	100			
2200.00	0 2400.0	00 2420.00	2440.00	2460.00	2480.00 2	500.00 252	20.00 254	0.00	2580.00 MI
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	0.00	2300.00 MI
INO.	IVIK.	r req.	Level	Factor	ment	LIIIII	Ovei		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2383.587	26.47	31.19	57.66	74.00	-16.34	peak	Commone
2		2383.587	3.08	31.19	34.27	54.00	-19.73	AVG	
3	Χ	2480.000	62.99	31.51	94.50	74.00	20.50	peak	NoLimit
4	*	2480.000	62.66	31.51	94.17	54.00	40.17	AVG	NoLimit
5		2503.307	27.86	31.58	59.44	74.00	-14.56	peak	-
6		2503.307	12.19	31.58	43.77	54.00	-10.23	AVG	

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



T	est Mo	de		BT(3	Mbps)			Test Date		2021	1/9/25	
Tes	t Frequ	iency		240	2MHz			Polarization	า	Hori	zontal	
	Temp)		2	2°C			Hum.		54	4%	
130.0 dB	uV/m				-	-						-
120												
110				100	- 10				<u> </u>			
100	-			, , , , , , , , , , , , , , , , , , ,		3						1
90		7				Ä						1
80												
70												
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30												1
20		-										
10.0												,
100000000000000000000000000000000000000	0 2322.0		V 5 2 6 7	2362.00	2382.00	2402.00	10 Y 2			2.00	2502.00	МН
No.	Mk.	Freq.		Reading Level	Correct Factor	Meas me		Limit	Over			
		MHz		dBuV	dB	dBu\	V/m	dBuV/m	dB	Detector	Comme	ent
1		2346.3		26.56	31.07	57.		74.00	-16.37	peak		
2		2346.3		7.20	31.07	38.		54.00	-15.73	AVG		
3	Χ	2402.0	00	61.84	31.26	93.		74.00	19.10	peak	NoLim	
4	*	2402.0		58.00	31.26	89.		54.00	35.26	AVG	NoLim	nit
5		2486.6		27.28	31.53	58.		74.00	-15.19	peak		
6		2486.6	73	3.10	31.53	34.	63	54.00	-19.37	AVG		

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



		est Mo			3T(3 M 2480N				Test Date			1/9/25 zontal	
	100	Temp			22°0				Hum.)II		4%	
130.0	0 dBu	ıV/m										.,,	
120													
110										12			-
100	-						2						4
90				77		i i							
80							_						
70													-
								5					
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40								X					
30	2 X												
20							9						
10.0													
		2400.0	00 2420.00	2440.0	0 24	60.00	2480	0.00 2	500.00 25	520.00 254	0.00	2580.00	_мн
No		Mk.	Freq.	Read	na (Correct	N /		1	_			
IN(0.	IVIIX.	ı ıeq.		•			easure- ment	Limit	Over			
IN	0.	IVIIX.	MHz	Leve dBu	el	Factor dB	l	easure- ment BuV/m	dBuV/m	dB	Detector	Comme	ent
1		IVIIC.		Leve dBu	el V	Factor	dl	ment			Detector peak	Comme	ent
1 2	l 2		MHz	Leve dBu 25.7 2.9	el V 8 I	Factor dB 31.18 31.18	dl	ment BuV/m 56.96 34.09	dBuV/m	dB -17.04 -19.91			
1 2 3	2	X	MHz 2382.413 2382.413 2480.000	Leve dBu 25.7 2.9 60.9	el V 8 1	Tactor dB 31.18 31.18 31.51	dl	ment BuV/m 56.96 34.09 92.47	dBuV/m 74.00 54.00 74.00	dB -17.04 -19.91 18.47	peak AVG peak	NoLim	nit
1 2	1 2 3		MHz 2382.413 2382.413	25.7 2.9 60.9 57.2	el V 8 1 6 7	Factor dB 31.18 31.18	dl g	ment BuV/m 56.96 34.09	dBuV/m 74.00 54.00	dB -17.04 -19.91	peak AVG		nit

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



	Test Mo			Mbps)		Test Date			1/9/25
Te	st Frequ			2MHz		Polarization	า		rtical
100 0 1	Temp)	2	2°C		Hum.		5.	4%
130.0 dE	luV/m				-		1		
120									
110									
100		-							
30							-		
30									
o									
io		_							
50		×							
10									
30		-							
20									
10.0									
	0 3550.0		8650.00	11200.00	ME STATEMENT N			100.00	26500.00 MH
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	61.31	-9.84	51.47	74.00	-22.53	peak	
2	*	4804.000	59.02	-9.84	49.18	54.00	-4.82	AVG	

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



	Test					Mbps)			t Date			1/9/25
	Test Fr		ency			2MHz			rizatio	n		zontal
30.0	dBuV/π	emp			2	2°C		H	um.		54	4%
130.0	dBu√n	1					-					
120												
10		1/4				- 10				42	×	
100					- 19							
90												
BO						10						
70 F		, i										
io			1									
50		2	ž									
10												
30		100									, , , , , , , , , , , , , , , , , , ,	
20		-								1		
10.0												5
	0.000 35				8650.00	11200.00	13750.00	16300.0			400.00	26500.00 MH
No.	Mł	<.	Freq.	F	Reading Level	Correct Factor	Measure ment	- Li	imit	Over		
			MHz		dBuV	dB	dBuV/m	dBı	uV/m	dB	Detector	Comment
1_			4804.00	0	63.83	-9.84	53.99	74	1.00	-20.01	peak	
2	*		4804.00	0	61.56	-9.84	51.72	54	1.00	-2.28	AVG	

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



	Test M					Mbps)		Test				1/9/25
T	est Fred		ncy			1MHz		Polariz		1		rtical
	Ten	ηp			2:	2°C		Hu	m.		54	4%
30.0	dBuV/m					-				1		
20												
10		4	-			<u> </u>		-				
00			-									
90						16						
30						8					1	
o 🗀												
o					100							
0		2	×									
0												
:0												
20			4				4	6				
0.0												
	000 3550	0.00	6100.0	30.00	8650.00	11200.00	18 19 17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	16300.00			00.00	26500.00 MH
No.	Mk.		Freq.		Reading Level	Correct Factor	Measure- ment	- Lin	nit	Over		
			MHz		dBuV	dB	dBuV/m	dBu\	//m	dB	Detector	Comment
1			4882.00	0	60.79	-9.77	51.02	74.	00	-22.98	peak	
2	*		4882.00	00	58.50	-9.77	48.73	54.	00	-5.27	AVG	_

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



	Test Mo				Mbps)			Test D				1/9/25
Te	est Frequ				1MHz			Polariza				zontal
20.0	Temp)		22	2°C			Hun	n.		5	4%
30.0	dBuV/m	-			-	-			-			
20												
10												
10												
00												
10												
0	1											
0												
0		_										
0		ž										
0												
0	10	1	5.5		10							
20												
10.0												
	000 3550.0	00 6100.0	0 8650	.00	11200.00	1375	0.00 1	16300.00	18850.0	00 214	400.00	26500.00 MH
No.	Mk.	Freq.	Rea	ding	Correct	Me	asure-	Limi	it	Over		
			Le		Factor		nent					
		MHz	dB		dB		BuV/m	dBuV.		dB	Detector	Comment
1		4882.00			-9.77		3.96	74.0		20.04	peak	
2	*	4882.00	0 61.	69	-9.77	5	1.92	54.0	0	-2.08	AVG	

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



	Tes	t Mo	de			BT(1						Test D					1/9/25
T			ency				OMH:	Z			F	Polariz)			rtical
		emp				2	2°C					Hun	n.			5	4%
30.0	dBuV/	m							-								
20																	
10		1/4							8								
00		-							- 2								
10																	
10			4														
0									-								
0																	
0		- 1/2	i X														
0 —			×														
0			3				-							12			
0																	
0.0																	
	.000 3				8650		1120		1375	V/A		300.00		50.00	6-10/2017	00.00	26500.00 M
No.	M	lk.	Freq	•	Rea Le			rrect		easur ment		Lim	it	Ov	er		
			MHz		dB			dΒ		3uV/r		dBuV	/m	dE	3	Detector	Commen
1			4960.0	00	59.	59	-9	.68		19.91		74.0	0	-24.	09	peak	
2	,	*	4960.0	00	55.	38	-9	.68	4	15.70		54.0	0	-8.3	30	AVG	

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



		t Mo				BT(1						Test D					1/9/25	
1	Test F						0MH	Z			- 1	Polariz:					zontal	
		emp				2	2°C					Hun	า.			5.	4%	
30.0	dBuV/	m						-										
20																		
10		- 40			-			0						12				
00														2				
10														5				
80																		
0		7						·										
o			1															
0		- 2	×												- 5			
0			2															
0		44			9.5			0				-		12				
20		-	-					5	-									
0.0																		
	.000 3				8650		1120			0.00		300.00		50.00		00.00	26500.00 I	ΜН
No.	M	К.	Freq		Rea Le			rrect ictor		easur ment	e- 	Limi	IT	Ove	er 			
			MHz		dB	uV	(dΒ	dl	3uV/r	n	dBuV	/m	dB	}	Detector	Commer	nt
1			4960.0		63.	68	-6	.68	ţ	54.00		74.0	0	-20.0		peak		
2	,	ŧ .	4960.0	00	61.	16	-6	9.68		51.48		54.0	0	-2.5	2	AVG		

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



	Test M					Mbp					Test Da				21/9/25
Te	est Freq					2MHz	<u> </u>			Р	olariza				ertical
30.0 c	Tem BuV/m	р			2	2°C					Hum.				54%
30.0 0	38U4/W							-							
20															
10	-							- 0				-			
00											-	- 1			
o L															
•															
0 —															
o 🗀															
0															
. –															
		1 X													
0		1 X 2 X													
0			,								-	42			
0															
1000 () 100 3550.	.00 610	0.00	8650	nn	11200	1 00	1375	n nn	162	00.00	18850	1.00 21	400.00	26500.00 MF
No.	Mk.	Fred	77.7.57	Rea			rect		easure	22.2	Limit	1111111111111	Over	100.00	20300.00 MI
. 10.			1.	Lev			ctor		ment				3 7 01		
		MHz	<u> </u>	dBı	uV	C	В	dl	3uV/m		dBuV/r	m	dB	Detector	Comment
1		4804.0	000	54.	08	-9	.84	4	14.24		74.00)	-29.76	peak	
2	*	4804.0	000	46.	08	-9	.84	3	36.24		54.00)	-17.76	AVG	

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



	Test M			(3 Mbps)		Test Date			1/9/25
10	est Freq	•	2	402MHz		Polarizatio	n		zontal
30.0	Tem	р		22°C		Hum.		5	4%
130.0	ag u v / m			- P			1		
120									
10							48		
00									
30									
30									
o 🗀									
;0									
io		1 ×							
10		2 X							
:0							-		
20									
10.0									
	000 3550.			11200.00				00.00	26500.00 MH
No.	Mk.	Freq.	Readin Level	g Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.00	0 58.19	-9.84	48.35	74.00	-25.65	peak	
2	*	4804.00	0 49.25	-9.84	39.41	54.00	-14.59	AVG	

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



	Tes	st Mo	de				Mbps)			Test D	ate		202	1/9/25
1	Test Frequency		2		1MHz		Polarization			Vertical				
		Гетр	1			22	2°C			Hum	١.		5	4%
30.0	dBuV/	'm												
20														
10		1/2	7		100		- 10	8						
00								2						
0														
:0														
o							W							
o														
0								- 4						
0			1 2											
		1/2	×				la la							
0														
0.0														
1000	.000 3	3550.0	0 6100	.00	8650.00)	11200.00	13750	.00 1	6300.00	1885	0.00 214	100.00	26500.00 MH
No.	N	1k.	Freq		Readir Leve		Correct Factor		asure- nent	Limi	t	Over		
			MHz		dBu∖		dB		uV/m	dBuV	/m	dB	Detector	Comment
1			4882.0		53.27	7	-9.77	43	3.50	74.0	0	-30.50	peak	
2		*	4882.0	00	46.91	1	-9.77	37	7.14	54.0	0	-16.86	AVG	

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



		st Mo				Mbps)		Test Date			1/9/25
			iency			1MHz		Polarizatio	n		zontal
		Temp			2	2°C		Hum.		54	4%
30.0	dBuV	/m									
20											
10						- 10			-		
00								6	7		
10								U			
:0											
0											
o											
0			1 X								
0			2 X								
0			95538								
0									,		
0.0											
1000	0.000	3550.0	0 6100.	00	8650.00	11200.00	13750.00	16300.00 18	850.00 214	00.00	26500.00 MH
No.	N	∕lk.	Freq.		Reading Level	Correct Factor	Measure- ment	- Limit	Over		
			MHz		dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1			4882.00	00	58.55	-9.77	48.78	74.00	-25.22	peak	
2		*	4882.00	00	50.36	-9.77	40.59	54.00	-13.41	AVG	

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



		st Mo				B Mbps)		Test Date			1/9/25
1			iency			80MHz		Polarizatio	n		tical
		Temp)		2	2°C		Hum.		5.	4%
30.0	dBuV	7m				-			_		
20											
10		- 10	-								
00											
90											
80											
o											
o											
io		- 2	1000								
10			1 X								
10			2 X								
20											
0.0											
1000	.000	3550.0	0 6100	.00	8650.00	11200.00	13750.00	16300.00 18	850.00 214	00.00	26500.00 MH
No.	N	Лk.	Freq		Reading Level	Correct Factor	Measure- ment	Limit	Over		
			MHz		dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1			4960.0	00	52.68	-9.68	43.00	74.00	-31.00	peak	
2		*	4960.0	00	43.86	-9.68	34.18	54.00	-19.82	AVG	

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



		t Mo				3 Mbps)		Test Date			1/9/25
T	est F					80MHz		Polarizatio	on		zontal
30.0	dBuV/	emp				22°C		Hum.		5.	4%
30.0	dBu√/	m									
20						· ·					
10			,								
00			-						,		
0											
0											
0		7									
0											
0			1								
0			1 X 2								
0			×								
0									,		
0.0											
1000.	.000 3	550.0	0 6100	.00	8650.00	11200.00	13750.00	16300.00 18	8850.00 214	100.00	26500.00 MH
No.	M	k.	Freq		Reading Level	Correct Factor	Measure ment	- Limit	Over		
			MHz		dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1			4960.0	00	55.00	-9.68	45.32	74.00	-28.68	peak	
2	7	k .	4960.0	00	46.24	-9.68	36.56	54.00	-17.44	AVG	

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



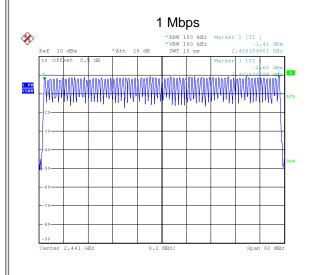
APPENDIX D	NUMBER OF HOPPING CHANNEL

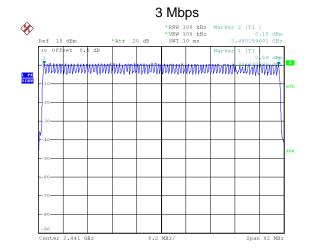
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Test Mode	1/3Mbps

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





Date: 24.MAR.2014 16:21:06 Date: 24.MAR.2014 17:15:18



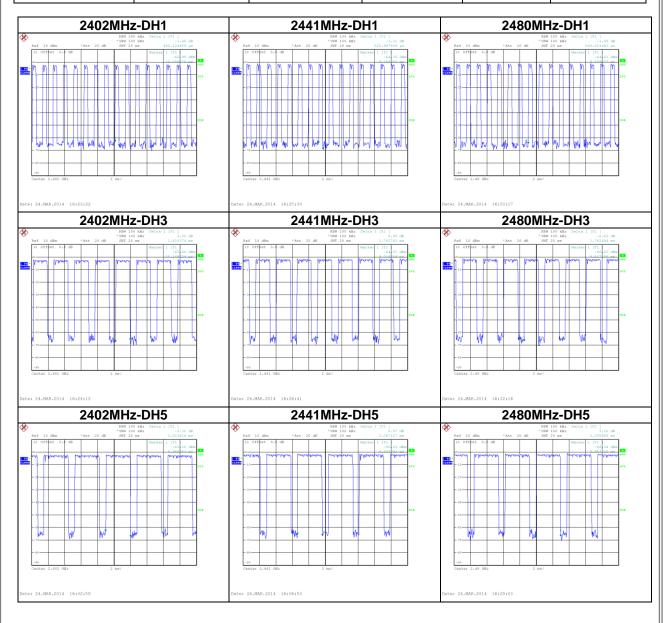
APPENDIX E AVERAGE TIME OF OCCUPANCY

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Test Mode	1Mbps
I LOST MORE	

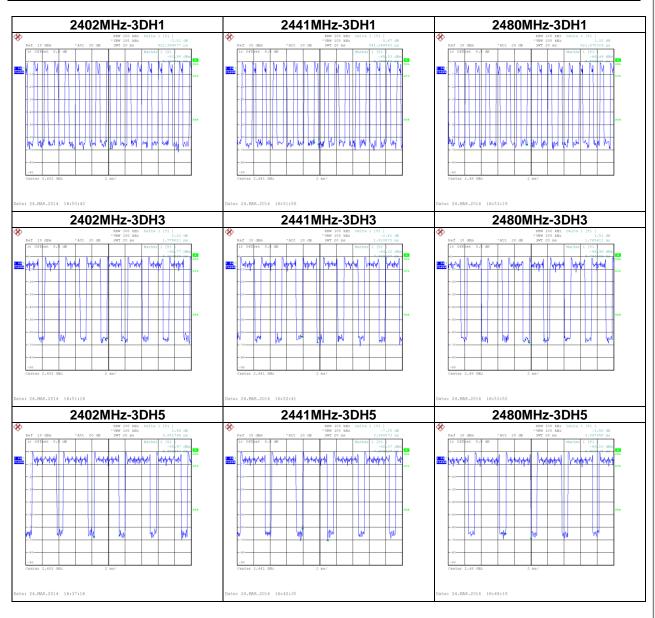
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH5	2402	3.0136	0.3215	0.4	Pass
DH3	2402	1.8104	0.2897	0.4	Pass
DH1	2402	0.4901	0.1568	0.4	Pass
DH5	2441	3.0571	0.3261	0.4	Pass
DH3	2441	1.7637	0.2822	0.4	Pass
DH1	2441	0.5210	0.1667	0.4	Pass
DH5	2480	3.0060	0.3206	0.4	Pass
DH3	2480	1.7625	0.2820	0.4	Pass
DH1	2480	0.5406	0.1730	0.4	Pass



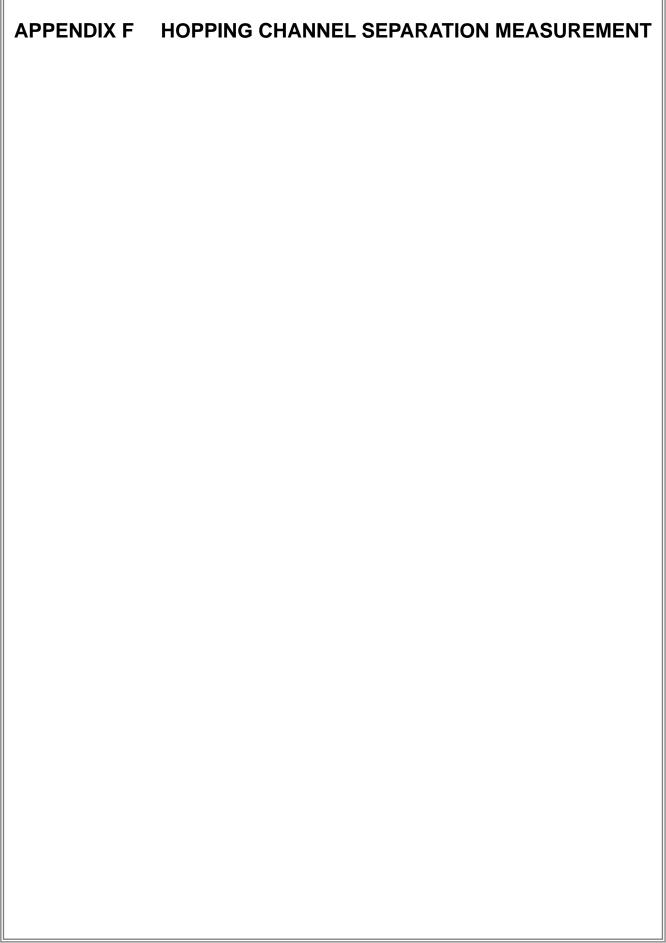


Test Mode	3Mbp
TEST MIDGE	JOIVID

Data Packet	Frequency (MHz)	Pulse Duration(ms)	Dwell Time(s)	Limits(s)	Test Result
3DH5	2402	3.0517	0.3255	0.4	Pass
3DH3	2402	1.7756	0.2841	0.4	Pass
3DH1	2402	0.5224	0.1672	0.4	Pass
3DH5	2441	3.0409	0.3244	0.4	Pass
3DH3	2441	1.8109	0.2897	0.4	Pass
3DH1	2441	0.5412	0.1732	0.4	Pass
3DH5	2480	3.0979	0.3304	0.4	Pass
3DH3	2480	1.7656	0.2825	0.4	Pass
3DH1	2480	0.5219	0.1670	0.4	Pass





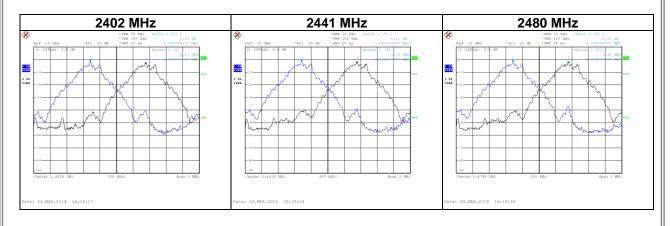


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Test Mode Hopping on _1Mbps	
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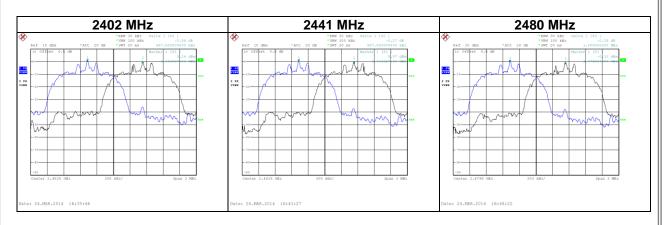
Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	1.005	0.625	Pass
2441	1.005	0.628	Pass
2480	1.005	0.632	Pass





Test Mode	Hopping on .	_3Mbps

Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	1.005	0.838	Pass
2441	1.005	0.848	Pass
2480	1.005	0.841	Pass





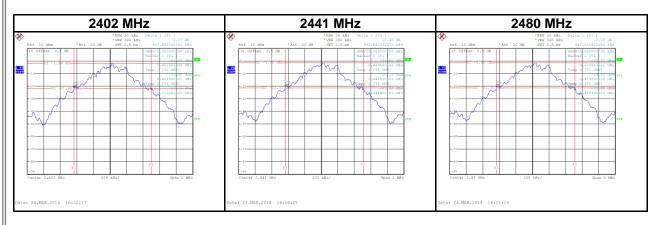
APPENDIX G	BANDWIDTH

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Test Mode	1Mbps

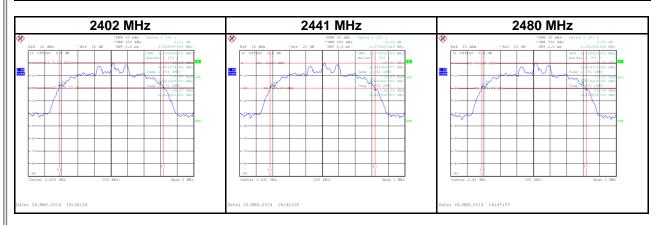
Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	0.938	0.875	Pass
2441	0.943	0.870	Pass
2480	0.948	0.870	Pass

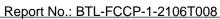




Tact Mada	3Mbps
Test Mode	131VIDPS
	· ·

Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	1.257	1.180	Pass
2441	1.272	1.175	Pass
2480	1.262	1.165	Pass







APPENDIX H	OUTPUT POWER

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Report No.: BTL-FCCP-1-2106T008

Test Mode	1Mbps		Tested	d Date 2	2021/7/22
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-3.54	0.0004	21.00	0.1259	Pass
2441	-3.02	0.0005	21.00	0.1259	Pass
2480	-0.89	0.0008	21.00	0.1259	Pass

Test Mode	2Mbps	Tested Date	2021/7/22
•			

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-0.62	0.0009	21.00	0.1259	Pass
2441	-1.01	0.0008	21.00	0.1259	Pass
2480	-1.13	0.0008	21.00	0.1259	Pass

Test Mode	3Mbps		2021/7/22
-----------	-------	--	-----------

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-0.62	0.0009	21.00	0.1259	Pass
2441	-1.01	0.0008	21.00	0.1259	Pass
2480	-1.13	0.0008	21.00	0.1259	Pass

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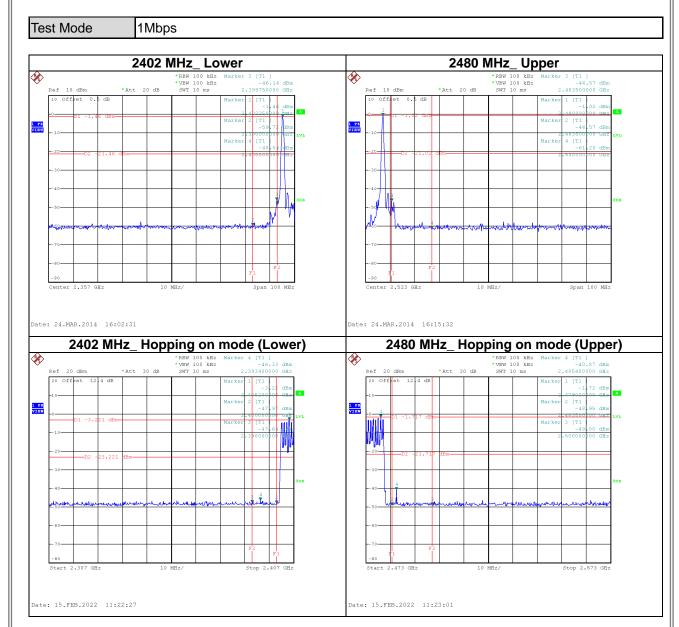


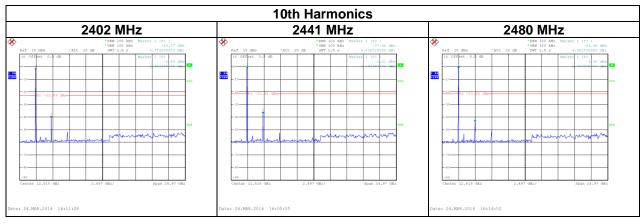
APPENDIX I	ANTENNA CONDUCTED SPURIOUS EMISSION		

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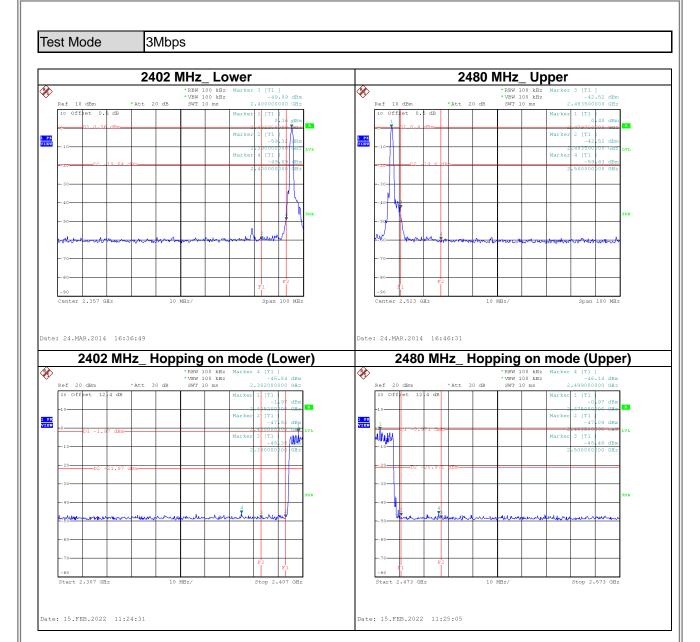


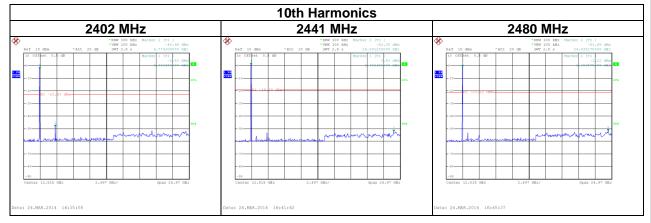












End of Test Report