

# **FCC Radio Test Report**

# FCC ID: 2AMHM-AD00A10055

Report No. Equipment Model Name Brand Name Applicant Address	<ul> <li>BTL-FCCP-3-1911T165</li> <li>iTraMS Gen2A</li> <li>CU-303-0403</li> <li>Bosch</li> <li>Robert Bosch Engineering &amp; Business Solution Pvt. Ltd.</li> <li>123, Industrial Layout, Hosur Road, Koramangala, Bengaluru, 560095 Bengaluru India</li> </ul>
Radio Function	: WLAN 2.4 GHz
FCC Rule Part(s) Measurement Procedure(s)	: FCC Part15, Subpart C (15.247) : ANSI C63.10-2013
Date of Receipt Date of Test Issued Date	: 2019/11/27 : 2019/11/27 ~ 2020/1/7 : 2020/3/19

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

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**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).

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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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# **REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	2020/3/3
R01	Revised report to address TCB's comments.	2020/3/16
R02	Revised Typo.	2020/3/19

#### 1 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		N/A	Note(1)	
15.205 15.209 15.247(d)	Radiated Emissions	APPENDIX A APPENDIX B	Pass		
15.247(a)	Bandwidth	APPENDIX C	Pass		
15.247(b)	Output Power	APPENDIX D	Pass		
15.247(e)	Power Spectral Density	APPENDIX E	Pass		
15.247(d)	Antenna conducted Spurious Emission	APPENDIX F	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.



#### 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: 355421 and DN: TW1099. □ CB11 □ CB08 $\square$ C05 □ CB15 □ CB16 $\times$ **SR06** No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan The test sites and facilities are covered under FCC RN: 325517 and DN: TW1115. C03 ⊠ CB18 CB19 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 $\mathbf{k} = 2$ , 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 U<sub>cisor</sub> requirement.

#### A. Radiated emissions below 1 GHz test :

Test Site	Method	Measurement Frequency Range		U,(dB)
CB18 (3m) CIS	CISPR	30MHz ~ 200MHz	V	4.20
		30MHz ~ 200MHz	H	3.64
		200MHz ~ 1,000MHz	V	4.56
		200MHz ~ 1,000MHz	Η	3.90

#### B. Radiated emissions above 1 GHz test :

Test Site	Method	Measurement Frequency Range		U,(dB)
CB18 (3m)	CISPR	1GHz ~ 6GHz	V	4.46
		1GHz ~ 6GHz	Н	4.40
		6GHz ~ 18GHz	V	3.88
		6GHz ~ 18GHz	Η	4.00

Test Site	Method	Measurement Frequency Range	U,(dB)
CB18	CISPR	18 ~ 26.5 GHz	4.62
(1m)	CISER	26.5 ~ 40 GHz	5.12

#### C. Conducted test :

Test Item	U,(dB)
Bandwidth	1.13
Output power	1.06
Power Spectral Density	1.20
Conducted Spurious emissions	1.14
Conducted Band edges	1.13

#### 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	Tested by
Radiated emissions below 1 GHz	23 °C, 65 %	Hunter Chiang
Radiated emissions above 1 GHz	23 °C, 65 %	Hunter Chiang
Bandwidth	24.7 °C, 53.9 %	Jay Kao
Output Power	24.7 °C, 53.9 %	Jay Kao
Power Spectral Density	24.7 °C, 53.9 %	Jay Kao
Antenna conducted Spurious Emission	24.7 °C, 53.9 %	Jay Kao

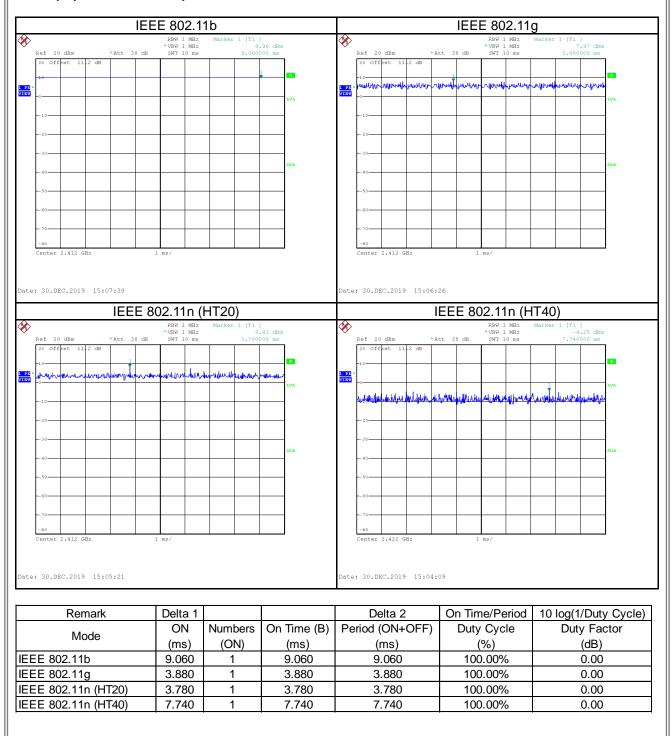
# 1.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

Test Software	DutApi_w8887_BrdigeEth				
Mode	2412 MHz	2412 MHz 2437 MHz 2462 MHz Data Rate			
IEEE 802.11b	17	11	15	1 Mbps	
IEEE 802.11g	14	16	15	6 Mbps	
IEEE 802.11n (HT20)	12	14	12	MCS 0	
Mode	2422 MHz	2437 MHz	2452 MHz	Data Rate	
IEEE 802.11n (HT40)	12	14	14	MCS 0	



# 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.



# 2 GENERAL INFORMATION

# 2.1 DESCRIPTION OF EUT

-		
Equipment	iTraMS Gen2A	
Model Name	CU-303-0403	
Brand Name	Bosch	
Model Difference	N/A	
Power Source	Supplied from Battery.	
Power Rating	DC 9-32V	
Products Covered	N/A	
Hardware Version	B2	
Software Version	MS8	
Frequency Range	2400 MHz ~ 2483.5 MHz	
Operation Frequency	2412 MHz ~ 2462 MHz	
	IEEE 802.11b: DSSS	
Modulation Technology	IEEE 802.11g: OFDM	
	IEEE 802.11n: OFDM	
	IEEE 802.11b: 11/5.5/2/1 Mbps	
Transfer Rate	IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps	
	IEEE 802.11n: up to 150 Mbps	
	IEEE 802.11b: 19.46 dBm (0.0883 W)	
Output Power Max.	IEEE 802.11g: 21.91 dBm (0.1552 W)	
	IEEE 802.11n (HT20): 21.55 dBm (0.1429 W)	
	IEEE 802.11n (HT40): 21.05 dBm (0.1265 W)	
Test Model	CU-303-0403	
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) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		

(3) Table for Filed Antenna:

Ant.	Brand	S/N	Antenna Type	Connector	Gain (dBi)
CH0		146153	Internal	N/A	3.0



# 2.2 TEST MODES

Test Items	Test mode	Channel	Note
	Test mode	Channel	note
Transmitter Radiated Emissions (below 1GHz)	TX Mode_IEEE 802.11b	01	-
	TX Mode_IEEE 802.11b		
Transmitter Radiated Emissions	TX Mode_IEEE 802.11g	01/06/11	-
(above 1GHz)	TX Mode_IEEE 802.11n (HT20)		
	TX Mode_IEEE 802.11n (HT40)	03/06/09	-
	TX Mode_IEEE 802.11b		
Bandwidth	TX Mode_IEEE 802.11g	01/06/11	-
Banawiatr	TX Mode_IEEE 802.11n (HT20)		
	TX Mode_IEEE 802.11n (HT40)	03/06/09	-
	TX Mode_IEEE 802.11b		
Output Power	TX Mode_IEEE 802.11g	01/06/11	-
	TX Mode_IEEE 802.11n (HT20)		
	TX Mode_IEEE 802.11n (HT40)	03/06/09	-
	TX Mode_IEEE 802.11b		
Power Spectral Density	TX Mode_IEEE 802.11g	01/06/11	-
	TX Mode_IEEE 802.11n (HT20)		
	TX Mode_IEEE 802.11n (HT40)	03/06/09	-
	TX Mode_IEEE 802.11b		
Antenna conducted Spurious Emission	TX Mode_IEEE 802.11g	01/06/11	-
	TX Mode_IEEE 802.11n (HT20)		
	TX Mode_IEEE 802.11n (HT40)	03/06/09	-

NOTE:

(1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.

(2) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Vertical) is recorded.

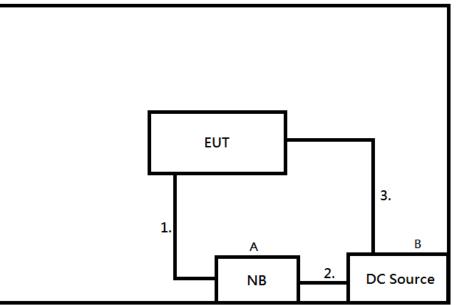
(3) All X, Y and Z axes are evaluated, but only the worst case (Z axis) is recorded.

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



# 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. Radiated Emissions



#### 2.4 SUPPORT UNITS

NO

3

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	notebook	hp	TPN-1119	NA	-
В	DC Source	twintex	TP-6010	1616AP051502100	-
Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	NO	NO	1m	Lan to USB	-
2	YES	NO	0.5m	RS232 to USB	-

1.5m

Power cable

NO

-



# **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 (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

#### LIMITS OF RADIATED EMISSIONS MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Radiated I (dBu	Measurement Distance	
(IVIHZ)	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
37.40	+	-12.18	Ш	25.22

Measurement Value		Limit Value		Margin Level
25.22	1	40	=	-14.78

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



# 3.2 TEST PROCEDURE

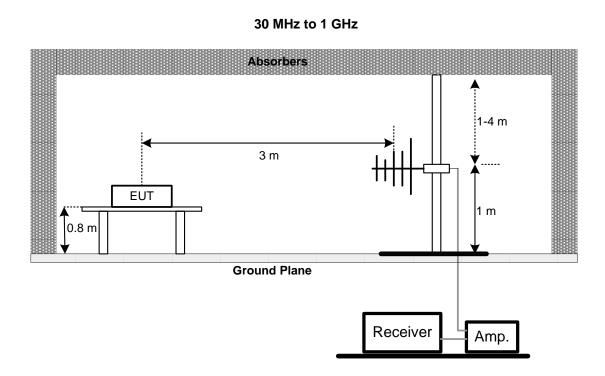
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance 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)
- 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

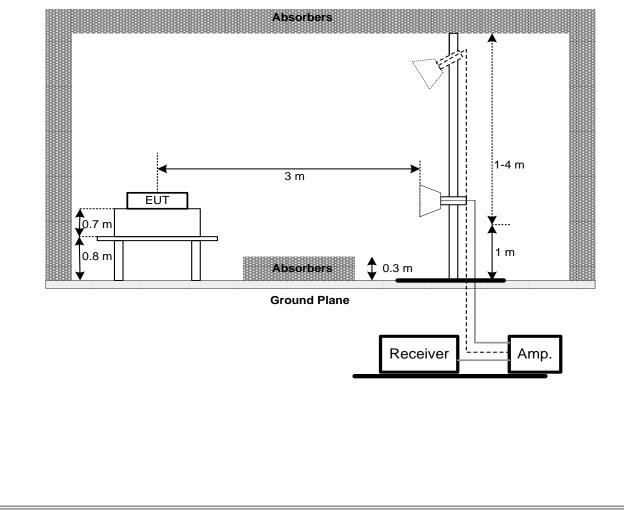
No deviation.



# 3.4 TEST SETUP



### Above 1 GHz





# 3.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 3.6 TEST RESULT – 30 MHZ TO 1 GHZ

Please refer to the APPENDIX A.

# 3.7 TEST RESULT – ABOVE 1 GHZ

Please refer to the APPENDIX B.

NOTE:

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



# 4 BANDWIDTH TEST

# 4.1 LIMIT

FCC Part15, Subpart C (15.247)					
Section	Test Item	Limit			
15.247(a)	6 dB Bandwidth	500 kHz			

# 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=300KHz, Sweep time = 2.5 ms.

#### 4.3 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4 TEST SETUP



#### 4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 4.6 TEST RESULT

Please refer to the APPENDIX C.



# 5 OUTPUT POWER TEST

#### 5.1 LIMIT

FCC Part15, Subpart C (15.247)				
Section	Test Item	Limit		
15.247(b)	Maximum Output Power	1 Watt or 30dBm		

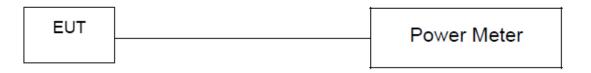
# 5.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance.

#### 5.3 DEVIATION FROM TEST STANDARD

No deviation.

#### 5.4 TEST SETUP



#### 5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

# 5.6 TEST RESULT

Please refer to the APPENDIX D.



# 6 POWER SPECTRAL DENSITY

#### 6.1 LIMIT

FCC Part15, Subpart C (15.247)								
Section	Test Item	Limit						
15.247(e)	Power Spectral Density	8 dBm (in any 3 kHz)						

#### 6.2 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 = 3 kHz, VBW = 10 kHz, Sweep time = Auto.

#### 6.3 DEVIATION FROM TEST STANDARD

No deviation.

#### 6.4 TEST SETUP

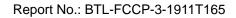


### 6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 6.6 TEST RESULT

Please refer to the APPENDIX E.





# 7 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST

# 7.1 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.

# 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 = 100 kHz, VBW=300 kHz, Sweep time = Auto.
- c. Offset = antenna gain + cable loss.

#### 7.3 DEVIATION FROM TEST STANDARD

No deviation.

# 7.4 TEST SETUP



# 7.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 7.6 TEST RESULT

Please refer to the APPENDIX F.

# 8 LIST OF MEASURING EQUIPMENTS

	Dedicted Emissions												
			Radiated Emission	ons									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until							
1	Preamplifier	EMCI	EMC02325B	980217	2019/4/12	2020/4/11							
2	Preamplifier	EMCI	EMC012645B	980267	2019/4/12	2020/4/11							
3	Test Cable	EMCI	EMC104-SM-SM- 800	150207	2019/4/12	2020/4/11							
4	Test Cable	EMCI	EMC104-SM-SM- 3000	151205	2019/4/12	2020/4/11							
5	Test Cable	EMCI	EMC-SM-SM-700 0	180408	2019/4/12	2020/4/11							
6	MXE EMI Receiver	Agilent	N9038A	MY55420127	2019/3/26	2020/3/25							
7	Signal Analyzer	Agilent	N9010A	MY56480554	2019/6/6	2020/6/5							
8	Horm Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2019/6/10	2020/6/9							
9	Horm Ant	Schwarzbeck	BBHA 9170	187	2018/12/22	2019/12/21							
10	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	000992	2019/5/29	2020/5/28							
11	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0508	2019/5/29	2020/5/28							
			Bandwidth										
Item	Kind of	Manufacturer	Type No.	Serial No.	Calibrated	Calibrated							

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP40	100129	2019/5/23	2020/5/22

	Output Power										
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until					
1	Power Meter	Anritsu	ML2495A	1128008	2019/12/6	2020/12/4					
2	Power Sensor	Anritsu	MA2411B	1126001	2019/12/6	2020/12/4					

Power Spectral Density									
ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until			
1	Spectrum Analyzer	R&S	FSP40	100129	2019/5/23	2020/5/22			

	Antenna conducted Spurious Emission											
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until						
1	Spectrum Analyzer	R&S	FSP40	100129	2019/5/23	2020/5/22						

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

# 9 EUT TEST PHOTO

Please refer to document Appendix No.: TP-1911T165-FCCP-1 (APPENDIX-TEST PHOTOS).

# **10 EUT PHOTOS**

Please refer to document Appendix No.: EP-1911T165-1 (APPENDIX-EUT PHOTOS).



# APPENDIX A RADIATED EMISSIONS - 30 MHZ TO 1 GHZ



	- ا م							Ta sta d Data	0040/40/00
est Mo			e_IEEE 802	.11D_241	ZIVIHZ			Tested Date	2019/12/29
est Vol	tage	DC 32V						Polarization	Vertical
80.0	dBuV/m								
70									
60									
50									
40								6	
30	1×			3 X	4 ×		5 X	Š.	
20			ž						
10									
0.0									
30	0.000 127.0	0 224.0	0 321.00	418.00	515.00	612.00	709.0	0 806.00	1000.00 MHz
No. MI		Reading Level	Factor	Measure- ment	Limit	Margin			
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	75.5900		-14.86	29.02	40.00	-10.98	peak		
2	241.4600		-13.16	22.97	46.00	-23.03	peak		
3	397.6300		-8.41	28.23	46.00	-17.77	peak		
4	500.4500		-6.12	30.52	46.00	-15.48	peak		
5	659.5300		-3.12	30.97	46.00	-15.03	peak		
6	783.6900	35.35	-1.02	34.33	46.00	-11.67	peak		

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.



Fest Mo	de	TX Mode_	IEEE 802	11h 241	2MHz			Tested Date	2019/12/29
Fest Vol		DC 32V						Polarization	Horizontal
80.0									
70									
60									
50									
40				4 X	×			6 X	
30	<u>1</u>	2 X	з×						
20									
10									
0.0 30	0.000 127.0	0 224.00	321.00	418.00	515.00	612.00	709.00	) 806.00	1000.00 MHz
No. M	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin			
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	119.2400	37.75	-13.52	24.23	43.50	-19.27	peak		
2	215.2700 307.4200	42.17 41.76	-14.64 -10.22	27.53 31.54	43.50 46.00	-15.97 -14.46	peak peak		
4	397.6300	41.76	-10.22	36.48	46.00	-14.46	peak		
5 *	500.4500	44.05	-6.12	37.93	46.00	-8.07	peak		
6	783.6900	37.02	-1.02	36.00	46.00	-10.00	peak		

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.



# APPENDIX B RADIATED EMISSIONS - ABOVE 1 GHZ



est Mode	TX Mo	ode_IE	EE 802. <sup>-</sup>	11b_24	12 MHz			Tes	sted Date	2019/12/27
est Voltage	DC 32	2V						Po	larization	Vertical
120.0 dBu¥	7m									
110					, K	ł				
100					^ Š	r l				
90						$\rightarrow$				
80										
70										
60				1	1	L L				5
50	mannah	warmen to a feel	whereas the second s	2			making	www.www.www.www.	Alland Almatanama	marina
				×						
40										×
30										
20										
10										
0.0										
2312.000		2352.00	2372.00			2.00 243	2.00	2452.00	2472.00	2512.00 MHz
No. Mk. Fi		eding evel	Correct Factor	Meası mer		it Marg	ļin			
N	1Hz (	dBu∨	dB	dBuV/	m dBuV/	/m dB	De	etector C	omment	
1 2386.	600 2	8.95	31.23	60.1	8 74.0	0 -13.8	2 р	eak		

54.00

74.00

54.00

74.00

54.00

49.29

106.28

102.51

58.89

36.15

-4.71

32.28

48.51

-15.11

-17.85

AVG

peak

AVG

peak

AVG

No Limit

No Limit

<b>REMARKS:</b>	
-----------------	--

2

4

5

6

2386.600

2511.200

2511.200

3 X 2412.000

\* 2412.000

(1) Measurement Value = Reading Level + Correct Factor.

31.23

31.34

31.34

31.76

31.76

18.06

74.94

71.17

27.13

4.39

(2) Margin Level = Measurement Value - Limit Value.



st Mode	TX M	ode_IE	EE 802.1	1b_2462	MHz			Tested Dat	te 2019/12/27
est Voltage	DC 3	2V				Polarization			n Vertical
120.0 dBu\	//m								
110									
100					*				
90									
80									
70									
60 1				$\sim$		huy			5
50	www.may.Mand	and produced	hupphanhananalar	walter and the state	·	in Ward	mandamentada	erendalisadeparturbadedeberteras	worth war the second the second
									_
40 <u>2</u> X									6 ×
30									
20									
10									
0.0	0000.00	2402.00	2422.00		2402.00	2402.0	0 0500	00 0500 00	2502.00 1411
2362.000		2402.00		2442.00	2462.00	2482.0	0 2502	.00 2522.00	2562.00 MHz
No. Mk. F		eading Level	Correct Factor	Measure- ment	Limit	Margin			
1	ИНz	dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 2365	.600	26.09	31.14	57.23	74.00	-16.77	peak		

RF	RKS	

3 X 2462.000

2462.000

2548.800

2548.800

4 \*

5

6

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

69.73

66.27

26.98

4.65

31.56

31.56

31.89

31.89

101.29

97.83

58.87

36.54

74.00

54.00

74.00

54.00

27.29

43.83

-15.13

-17.46

peak

AVG

peak

AVG

No Limit

No Limit



st Mode	TXI	Mode_IE	EE 802.1	1g_2412	MHz			Tested Date	2019/12/27
est Voltage	DC	32V						Polarization	Vertical
120.0 dBu\	//m								
110									
100					~~~~				
90					×				
80						White			
70				1 MW		- ANN ANN ANN ANN ANN ANN ANN ANN ANN AN	1		
60	<u>.</u>	a man she far an an proper de la	un anta Maria da	AND 3			hand have been been been been been been been be	and marked and a second	5
50	Any South Superior	an tala ana ang ang ang ang ang ang ang ang an	Petrological & mode of acc	×					
40									6 X
30									
20									
10									
0.0 2312.000	2332.00	2352.00	2372.00	2392.00	2412.00	2432.0	0 2452	.00 2472.00	2512.00 MHz
No. Mk. F	req.	Reading Level	Correct Factor	Measure- ment	Limit	Margir	)		
	/Hz	dBu∨	dB	dBu\√/m	dBuV/m	dB	Detector	Comment	
1 2390	.000	38.87	31.25	70.12	74.00	-3.88	peak		
2 2390	.000	19.31	31.25	50.56	54.00	-3.44	AVG		
3 X 2412	000	73.00	31.34	104.34	74.00	30.34	peak	No Limit	

No Limit

#### **REMARKS**:

5

6

4 \* 2412.000

2507.600

2507.600

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

63.54

27.39

4.36

31.34

31.76

31.76

94.88

59.15

36.12

54.00

74.00

54.00

40.88

-14.85

-17.88

AVG

peak

AVG



st Mode	ТΧ	Mode_IE	EE 802.1	1g_2462	MHz			Tested	Date	2019/12/27
est Voltage	DC	32V						Polariz	ation	Vertical
										-
120.0 dBuV	//m									
110										
100					3 3	n				
90					X					
80										
						h -				
70	_			m	/	<sup>1</sup> hm 5				
	man	wanderman	manna	www			hold through many	man	www.www.www.	when we are a second of the
50						6 X				
40	2 X									
30										
20										
10										
0.0										
2362.000			2422.00	2442.00	2462.00	2482.0	0 2502	2.00 25	522.00	2562.00 MHz
No. Mk. F	req.	Reading Level	Correct Factor	Measure- ment	Limit	Margin				
N	1Hz	dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Comm	ent	
1 2382.	000	27.45	31.21	58.66	74.00	-15.34	peak			
		5.10	31.21	36.31	54.00		AVG			

peak

AVG

peak

AVG

No Limit

No Limit

29.20

40.22

-6.00

6	2483.800	14.29	31.66	45.95	54.00	-8.05

31.56

31.56

31.66

103.20

94.22

68.00

74.00

54.00

74.00

71.64

62.66

36.34

#### **REMARKS**:

3 X 2462.000

2462.000

2483.800

4 \*

5

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



est Mod	le TX	Mode_IE	EE 802.1	1n (HT20	)_2412 I	MHz		Tested Date	2019/12	2/27
est Volta	age DC	C 32V						Polarization	Vertical	
120.0 110 - 90 - 80 - 70 -	dBuV/m			1 Marine Marine Marine Marine Marine M	A X		Monderman		5	
50 - 50 - 40 - 30 - 20 -	<u>, hyr-wei (****4), wil effe</u>	ng transfering and the second s	n-hadisonga da dina	2 X				hetroordelander te state haden	6 ×	
10 0.0	2.000 2332.0	0 2352.00	2372.00	2392.00	2412.00	2432.0	0 2452	2.00 2472.00	2512.00	
No. Mk.		Reading Level	Correct Factor	Measure- ment	Limit	Margin			2312.00	
	MHz	dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Comment		
1	2390.000	39.54	31.25	70.79	74.00	-3.21	peak			
2	2390.000	17.70	31.25	48.95	54.00	-5.05	AVG			
3 X	2412.000	72.22	31.34	103.56	74.00	29.56	peak	No Limit		
4 *	2412.000	62.17	31.34	93.51	54.00	39.51	AVG	No Limit		

#### **REMARKS**:

5

6

2489.800

2489.800

(1) Measurement Value = Reading Level + Correct Factor.

31.69

31.69

(2) Margin Level = Measurement Value - Limit Value.

27.24

4.26

58.93

35.95

74.00

54.00

-15.07

-18.05

peak

AVG



t Mode	TX Mo	de_IEEE	802.11n (	HT20)_24	462 MHz		Tested D	Date	2019/12/27	
t Voltage	DC 32	V					Polarization		Vertical	
120.0 dBu	V/m									
110										
100					3					
90					×					
80										
70				A What	Nrth	\$				
60 <u>1</u> 	the and the second s	manulana	n-monumenter the			s www.www	Manager	han water	yourseless. Markete	
40 2						<u>^</u>				
30 ×										
20										
10										
0.0 2362.000	2382.00	2402.00	2422.00 2	442.00 24	62.00 248	2.00 2502	2.00 2522	2.00	2562.00 MHz	
. Mk. F				asure- ient Lir	mit Marg	lin				
	MHz c	Bu∨	dB dB	uV/m dBu	√/m dB	Detector	Commer			

REMARKS	:

2

5

6

4 \*

2371.000

2462.000

2483.500

2483.500

3 X 2462.000

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

4.34

69.41

60.01

33.40

18.92

31.17

31.56

31.56

31.66

31.66

35.51

100.97

91.57

65.06

50.58

54.00

74.00

54.00

74.00

54.00

-18.49

26.97

37.57

-8.94

-3.42

AVG

peak

AVG

peak

AVG

No Limit

No Limit



st Voltage         DC 32V         Polarization           120.0         dBuV/m	ation Vertical
100 90 80 100 100 100 100 100 100 100 100 100	
100 90 80 1	
90 80 1	
70	
. (V <sup>W</sup> *' ) V <sub>W</sub> (J	
60 ····································	5 5 mm
50 × · · · · · · · · · · · · · · · · · ·	The Part of the Art of
40	6 ×
30	
20	
10	
0.0 2222.000 2262.00 2302.00 2342.00 2382.00 2422.00 2462.00 2502.00 25	42.00 2622.00 MHz
Reading Correct Measure-	
No. Mk. Freq. Level Factor ment Limit Margin	
MHz dBuV dB dBuV/m dBuV/m dB Detector Comme	ent
1         2389.600         40.04         31.25         71.29         74.00         -2.71         peak           2         2389.600         18.50         31.25         49.75         54.00         -4.25         AVG	

3 X 2422.000

2422.000

2585.600

2585.600

4 \*

5

6

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

65.98

56.33

27.98

4.72

31.39

31.39

32.00

32.00

97.37

87.72

59.98

36.72

74.00

54.00

74.00

54.00

23.37

33.72

-14.02

-17.28

peak

AVG

peak

AVG

No Limit

No Limit



est Mode	TX Mode_I	EEE 802.11	b_2412 MHz		Tested Date	2019/12/27
est Voltage	DC 32V				Polarization	Vertical
120.0 dBu¥	/m					
110						
100						
90						
80						
70						
60	1					
50	2 X					
40 30						
20						
10						
0.0						
1000.000			11200.00 13750	.00 16300.00 1885	50.00 21400.00	26500.00 MHz
No. Mk. Fi	Reading req. Level	Correct N Factor	Measure- ment Limit	Margin		
N	IHz dBu∨	dB	dBuV/m dBuV/m	dB Detector	r Comment	
1 4824.		-10.52	52.75 74.00	-21.25 peak		
2 * 4824.	000 54.91	-10.52	44.39 54.00	-9.61 AVG		

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



est Mode	TX Mode_I	EEE 802.1	1b_2412	MHz		Те	sted Date	2019/12/27
est Voltage	DC 32V					Po	larization	Horizontal
120.0 dBuV	//m							
110								
100								
90								
80								
70								
60								
50	1 X							
40	2 X							
30	~							
20								
10								
0.0	3550.00 6100.0	0 8650.00	11200.00	13750.00	16300.00	0 18850.00	21400.00	26500.00 MHz
1000.000	Reading		Measure-	13730.00	10300.00	0 18850.00	21400.00	28300.00 MH2
No. Mk. – F	req. Level	Factor	ment	Limit	Margin			
	4Hz dBu∨	dB	dBu√/m	dBuV/m		Detector (	Comment	
1 4824.		-10.52	44.67	74.00	-29.33	peak		
2 * 4824.	.000 44.33	-10.52	33.81	54.00	-20.19	AVG		

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



t Voltage	I'X Mode_i	EEE 802.1	1b_2437	MHz			Tested	Date	2019/12/27
	DC 32V						Polariz	ation	Vertical
120.0 dBuV/	'm								
110									
100									
90									
80									
70									
60	1								
50	×								
40									
30									
20									
10 0.0									
1000.000 3	3550.00 6100.0	0 8650.00	11200.00	13750.00	16300.	00 1885	i0.00 21	400.00	26500.00 MHz
. Mk. En	Reading eq. Level	Correct Factor	Measure- ment	Limit	Margin				
Mł	-	dB	dBuV/m	dBu//m	dB	Detector	Comm	ent	
1 4874.0	000 64.10	-10.40	53.70	74.00	-20.30	peak			
2 * 4874.0	000 60.14	-10.40	49.74	54.00	-4.26	AVG			



est Mode	TX Mode_I	EEE 802.1	1b_2437	MHz			Teste	ed Date	2019/12/27
est Voltage	DC 32V						Pola	rization	Horizontal
120.0 dBu	u Im								
120.0 404									
110									
100									
90									
80									
70									
60									
50									
40	1 X 2								
30	X								
20									
10									
0.0									
1000.000	3550.00 6100.0	0 8650.00	11200.00	13750.00	16300.0	1885	0.00	21400.00	26500.00 MHz
lo. Mk. – F	Reading req. Level	Correct Factor	Measure- ment	Limit	Margin				
1	MHz dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Con	nment	
1 4874	.000 56.19	-10.40	45.79	74.00	-28.21	peak			
2 * 4874	.000 46.61	-10.40	36.21	54.00	-17.79	AVG			



t Mode	TX I	Mode_	IEEE 80	2.11b_2	462 MHz			Tes	ted Date	2019/12/27
t Voltage	DC	32V						Pola	arization	Vertical
120.0 dBu\	)//m									
	*/									
110										
100										
90										
80										
70										
60		-								
50		1 X								
40										
30										
20										
10										
0.0										
1000.000	3550.00	6100.	.00 8650	.00 112	00.00 137	50.00 1630	0.00 1	8850.00	21400.00	26500.00 MHz
p. Mk. – F	Freq.	Readin Level	g Corre Facto			nit Marg	in			
	MHz	dBuV	dB	dBuV			Detec	tor Co	omment	
1 4924		64.34								
2 * 4924	.000	61.49	-10.28	3 51.2	21 54.0	0 -2.79				



st Mode	ТХ	Mode_IE	EE 802.1	1b_2462	MHz			Tested	Date	2019/12/27
t Voltage	e DC	32V						Polariz	ation	Horizontal
120.0 d	lBuV/m									
110										
100										
90										
80										
70										
60										
50		1 X								
40		2 X								
30										
20										
10 0.0										
	00 3550.00	) 6100.00	8650.00	11200.00	13750.0	0 16300	.00 1885	0.00 21	400.00	26500.00 MHz
lo. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margir	1			
	MHz	dBu∨	dB	dBu√/m	dBuV/m	dB	Detector	Comm	ent	
	24.000	57.09	-10.28	46.81	74.00	-27.19	peak			
2 * 49	24.000	48.19	-10.28	37.91	54.00	-16.09	AVG			

(2) Margin Level = Measurement Value - Limit Value.



est Mode	TX Mode_I	EEE 802.1	1g_2412	MHz			Teste	ed Date	2019/12/27
est Voltage	DC 32V						Pola	rization	Vertical
120.0 dBu	W/m								
110									
100									
90									
80									
70									
60									
50	×								
40	2 X								
30 20									
10									
0.0									
1000.000	3550.00 6100.0 Reading		11200.00 Measure-	13750.00	16300.	.00 1885	0.00	21400.00	26500.00 MHz
No. Mk. – F	Freq. Level	Factor	ment	Limit	Margin				
	MHz dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	Con	nment	
	1.000 58.93 1.000 45.06	-10.52 -10.52	48.41 34.54	74.00 54.00	-25.59 -19.46	peak AVG			



est Mode	TX Mode_II	EEE 802.1	1g_2412 l	MHz		Test	ed Date	2019/12/27
st Voltage	DC 32V					Pola	rization	Horizontal
120.0 dBuV 110								
10								
0.0								
1000.000	3550.00 6100.0	0 8650.00	11200.00	13750.00	16300.00	18850.00	21400.00	26500.00 MHz
No. Mk. F	Reading req. Level	Correct Factor	Measure- ment	Limit M	largin			
	1Hz dBu∨	dB	dBuV/m		dB Dete	ctor Cor	nment	
1 4824.	.000 54.58	-10.52	44.06	74.00 -2	9.94 pe;	ak		
2 * 4824.	.000 42.23	-10.52	31.71	54.00 -2	2.29 AV	G		



est Mode	TX Mode_I	EEE 802.1	1g_2437	MHz		Те	sted Date	2019/12/27
est Voltage	DC 32V					Pc	larization	Vertical
120.0 dBuV	/m							
110								
100								
90								
80								
70								
60	<b>k</b>							
50								
40	2 X							
30								
20								
10								
0.0								
1000.000				13750.00	16300.00	) 18850.00	21400.00	26500.00 MHz
No. Mk. F	Reading req. Level	Correct Factor	Measure- ment	Limit	Margin			
	1Hz dBu∨	dB	dBuV/m	dBuV/m		Detector (	Comment	
1 4874.		-10.40	58.25		-15.75	peak		
2 * 4874.	000 54.23	-10.40	43.83	54.00	-10.17	AVG		



est Mode	TX Mode_IE	EEE 802.1	1g_2437	MHz			Teste	ed Date	2019/12/27
est Voltage	DC 32V						Pola	rization	Horizontal
120.0 dBu\	//m								
110									
100									
90									
80									
70									
60									
50	1								
40	X								
30	2 X								
20									
10									
0.0	3550.00 6100.00	) 8650.00	11200.00	13750.00	16300.	00 1995	50.00	21400.00	26500.00 MHz
1000.000	Reading	Correct	Measure-	13730.00	10500.	00 100.		21400.00	20300.00 M112
	req. Level	Factor	ment	Limit	Margin				
	1Hz dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Con	nment	
1 4874		-10.40	45.62	74.00	-28.38	peak			
2 * 4874	.000 42.59	-10.40	32.19	54.00	-21.81	AVG			



st Mode	TX Mode_	IEEE 802.	11g_2462	MHz			Testeo	d Date	2019/12/27
st Voltage	DC 32V						Polariz	zation	Vertical
120.0 dBu	√/m								
110									
100									
90									
80									
70									
60	1								
50	1 ×								
40	2 X								
30									
20									
10									
0.0	3550.00 6100	.00 8650.00	0 11200.00	13750.00	D 16300.	.00 1885	0.00 2 <sup>.</sup>	1400.00	26500.00 MHz
No. Mk. F	Readin Freq. Level	g Correct Factor	Measure- ment	Limit	Margin				
	MHz dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Comm	nent	
1 4924 2 * 4924			52.52 38.75	74.00 54.00	-21.48 -15.25	peak AVG			
2 4924	.000 49.03	-10.20	30.10	54.00	-15.25	AVG			



st Mode	TX Mode	_IEEE 802	2.11g_2462	2 MHz			Tested	Date	2019/12/27
st Voltage	DC 32V						Polariza	ation	Horizontal
120.0 dBu\	√/m								
110									
100									
90									
80									
70									
60									
50	1 X								
40	× 2								
30	ž								
20									
10									
0.0	0550.00.010	0.00 0050	00 11000 01		10000	00 1005			00500.00.000
1000.000	Readir Readir		t Measure		0 16300.0 Margin		J.UU 214	00.00	26500.00 MHz
	MHz dBu∨		dBuV/m	dBuV/m	dB	Detector	Comme	nt	
1 4924				74.00	-28.94	peak			
2 * 4924	.000 42.77	7 -10.28	32.49	54.00	-21.51	AVG			



est Mode	TX Mode_IE	EEE 802.11n (	(HT20)_24	12 MHz		Tested I	Date	2019/12/27
st Voltage	DC 32V					Polariza	ation	Vertical
120.0 dBu¥	//m							
110								
100								
90								
80								
70								
60								
50	1 X							
40	2 X							
30	X							
20								
10								
0.0	3550.00 6100.00	0 8650.00 1	1200.00 137	50.00 16300	.00 1885	0.00 214	00.00	26500.00 MHz
	Reading	Correct Me	asure-					
	req. Level		nent Lim					
1 4824.	/Hz dBu∨ .000 56.81		8uV/m dBu∨ 6.29 74.0		Detector peak	Comme	riL	
	.000 44.84		4.32 54.0		AVG			



st Mode	ТХ	Mode_IE	EE 802.1	1n (HT20)	)_2412 M	ИНz		Tested	Date	2019/12/27
st Voltag	je DC	32V						Polariza	ation	Horizontal
120.0	dBuV/m									
110										
90										
80										
70										
60										
50										
40		1 X								
30		2 X								
20										
10										
0.0 1000.	.000 3550.00	) 6100.00	8650.00	11200.00	13750.00	16300.	.00 1885	0.00 214	00.00	26500.00 MHz
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin				
4 4	MHz	dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Comme	nt	
	824.000 824.000	54.79 42.07	-10.52 -10.52	44.27 31.55	74.00 54.00	-29.73 -22.45	peak AVG			



	TX Mode_I	EEE 802.2	l1n (HT20	)_2437	MHz		Tested	Date	2019/12/2
st Voltage	DC 32V						Polariza	ation	Vertical
120.0 dBuv 110 100 90 80 70	//m								
60	<u>k</u>								
50									
40	2 X								
30									
20									
10									
0.0 1000.000	3550.00 6100.0	00 8650.00	11200.00	13750.0	16300.	.00 1885	0.00 214	00.00	26500.00 MHz
lo. Mk. F	Reading		Measure-	Limit	Margin				
	req. Level MHz dBu∨	Factor dB	m ent dBuV/m	dBuV/m	dB	Detector	Comme	nt	
1 4874		-10.40	55.27	74.00	-18.73	peak			
2 * 4874	.000 51.39	-10.40	40.99	54.00	-13.01	AVG			



est Mode	TX Mode_I	EEE 802.1	1n (HT20)	)_2437 N	ЛНz		Teste	ed Date	2019/12/27
est Voltage	DC 32V						Pola	rization	Horizontal
120.0 dBu\	//m								
110									
100									
90									
80									
70									
60									
50									
40	1 X								
30	2 X								
20									
10									
0.0	3550.00 6100.0	0 8650.00	11200.00	13750.00	16300.0	0 1885	0 00	21400.00	26500.00 MHz
1000.000	Reading	Correct	Measure-	151 50.00	10500.0	1005	0.00	21400.00	20300.00 MHZ
	req. Level	Factor	ment	Limit	Margin				
	1Hz dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Con	nment	
1 4874 2 * 4874		-10.40	44.31 32.25		-29.69 -21.75	peak AVG			
2 10/4	.000 12.00	10.10	02.20	01.00	21.10	~~~~			



t Mode	TX Mode_I	EEE 802.11	n (HT20)	2462	MHz		Tested [	Date	2019/12/27
t Voltage	DC 32V						Polariza	ition	Vertical
120.0 dBu¥ 110 100	//m								
80 70 60									
50 40 30	2 X								
20 10 0.0 1000.000	3550.00 6100.0	00 8650.00	11200.00	13750.00	) 16300.	DO 1885	50.00 214(	00.00	26500.00 MHz
	Reading req. Level	Factor	Measure- ment	Limit	Margin	Detector			
™ 1 4924.	1Hz dBu∨ 000 59.19	dB -10.28		dBuV/m 74.00	dB -25.09	Detector peak	Commer		
2 * 4924.		-10.28		54.00	-18.04	AVG			
MARKS: Measurerr									



st Mode	TX Mode_	_IEEE 802.	11n (HT20	)_2462	MHz		Tested I	Date	2019/12/27
st Voltage	DC 32V						Polariza	ation	Horizontal
120.0 JD.4									
120.0 dBu\	¥7m								
110									
100									
90									
80									
70									
60									
50									
40	1 X								
30	2 X								
20									
10									
0.0									
1000.000	3550.00 6100		0 11200.00	13750.00	0 16300.	.00 1885	0.00 214	DO.OO	26500.00 MHz
No. Mk. – F	Readir req. Level		Measure- ment	Limit	Margin				
	MHz dBu∨		dBuV/m	dBuV/m	dB	Detector	Comme	nt	
1 4924	.000 55.14	4 -10.28	44.86	74.00	-29.14	peak			
2 * 4924	.000 42.65	5 -10.28	32.37			AVG			



t Mode	) TX I	Mode_IEI	EE 802.1	1n (HT40	)_2422 🛚	ИНz		Teste	ed Date	2019/12/27
t Volta	ge DC	32V						Pola	rization	Vertical
120.0	dBu∀/m									
120.0										
110										
100										
90 -										
80 -										
70										
60 —										
50		_								
40		X								
30		2 X								
20										
10 — 0.0										
	0.000 3550.00	6100.00	8650.00	11200.00	13750.00	) 16300.	00 1885	60.00	21400.00	26500.00 MHz
- NAL.		Reading	Correct	Measure-	Limit	Margin				
o. Mk.	Freq. MHz	Level dBuV	Factor dB	m ent dBuV/m	Limit dBuV/m	Margin dB	Detector	Com	iment	
1 4	844.000	56.29	-10.47	45.82	74.00	-28.18	peak	Com	IIIIEIIL	
	844.000	44.05	-10.47	33.58	54.00	-20.42	AVG			
		11.00	10.11			20.12				



Notitage         DC 32V         Polarization         Horizontal           100         d8uV/m	st Mode	TX Mode_I	EEE 802.1	1n (HT40)	_2422	MHz		Tested	Date	2019/12/2
110	st Voltage	DC 32V						Polariza	ation	Horizonta
50       1	110       100       90       80       70	//m								
40       2	50									
20       10 <td< td=""><td></td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		2								
10       0.0       10       6100.00       8650.00       11200.00       13750.00       16300.00       18850.00       21400.00       26500.00 MHz         10       0.0       0.0       3550.00       6100.00       8650.00       11200.00       13750.00       16300.00       18850.00       21400.00       26500.00 MHz         0.       Mk.       Freq.       Reading Level       Correct Factor       Measurement       Limit Margin         MHz       dBuV       dB       dBuV/m       dB       Detector Comment         1       4844.000       54.28       -10.47       43.81       74.00       -30.19       peak		X								
0.0       0.0       6100.00       8650.00       11200.00       13750.00       16300.00       18850.00       21400.00       26500.00 MHz         0. Mk.       Freq.       Reading Level       Correct Factor       Measure- ment       Limit       Margin       Margin         MHz       dBuV       dB       dBuV/m       dB       Detector       Comment         1       4844.000       54.28       -10.47       43.81       74.00       -30.19       peak										
1000.000         3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850.00         21400.00         26500.00 MHz           D. Mk. Freq.         Reading Level         Correct Factor         Measure- ment         Limit         Margin         Margin           MHz         dBuV         dB         dBuV/m         dB         Detector         Comment           1         4844.000         54.28         -10.47         43.81         74.00         -30.19         peak										
o. Mk. Freq. Level Factor ment Limit Margin MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 1 4844.000 54.28 -10.47 43.81 74.00 -30.19 peak		3550.00 6100.0	0 8650.00	11200.00	13750.0	0 16300	.00 1885	i0.00 214	100.00	26500.00 MHz
MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 1 4844.000 54.28 -10.47 43.81 74.00 -30.19 peak	n Mk F				Limit	Marair				
· ·		-						Comme	nt	
2 * 4844.000 41.86 -10.47 31.39 54.00 -22.61 AVG	1 4844	.000 54.28	-10.47	43.81	74.00	-30.19	peak			
	2 * 4844	.000 41.86	-10.47	31.39	54.00	-22.61	AVG			
							-			



st Mode	TX	Mode_IE	EE 802.1	1n (HT40	)_2437 I	MHz		Teste	ed Date	2019/12/27
st Voltag	e DC	32V						Pola	rization	Vertical
120.0 d	lBuV/m									
110										
100										
90										
80										
70										
60										
50		1 X								
40		2 X								
30										
20										
10										
0.0	)00 3550.00	6100.00	8650.00	11200.00	13750.00	16300.1	00 1885	0 00	21400.00	26500.00 MHz
		Reading	Correct	Measure-		10000.			21100.00	
lo. Mk.	Freq.	Level	Factor	ment	Limit	Margin				
	MHz	dBu∨	dB	dBuV/m	dBuV/m	dB	Detector	Con	nment	
	74.000	58.61	-10.40	48.21	74.00	-25.79	peak			
-7 ° 48	74.000	46.24	-10.40	35.84	54.00	-18.16	AVG			



st Voltage		Mode_I	EEE 802.	11n (HT4	40)_2437	' MHz		Tested D	ate	2019/12/27
	; DC	32V						Polarizat	ion	Horizontal
120.0 dE	BuV/m									
110										
100										
90										
80										
70										
60										
50		1								
40		X								
30		2 X								
20										
10										
0.0										
1000.00	00 3550.00					.00 16300	).00 1885	0.00 21400	0.00	26500.00 MHz
lo. Mk.	Freq.	Reading Level	) Correct Factor	Measur ment		Margir	1			
	MHz	dBuV	dB	dBuV/m			Detector	Comment		
1 487	74.000	54.91	-10.40	44.51	74.00	-29.49	peak			
2 * 487	74.000	42.55	-10.40	32.15	54.00	-21.85	AVG			



st Mode	TX N	/lode_IE	EE 802.1	1n (HT40)	)_2452 I	MHz		Tested I	Date	2019/12/27
st Voltage	DC 3	32V						Polariza	ation	Vertical
120.0 dB	uV/m									
110										
100										
90										
80										
70										
60										
50		1 X								
40		2								
30		×								
20										
10										
0.0	0 3550.00	6100.00	8650.00	11200.00	13750.00	) 16300	.00 1885	i0.00 21 <b>4</b>	DO. OO	26500.00 MHz
No. Mk.	F Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margir	1			
10. 1110	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comme	nt	
1 490	4.000	56.52	-10.32	46.20	74.00	-27.80	peak			
2 * 490	4.000	44.25	-10.32	33.93	54.00	-20.07	AVG			



Mode	TX Mode_I	EEE 802.1	1n (HT40	)_2452 N	/Hz		Tested	Date	2019/12/2
Voltage	DC 32V						Polariz	ation	Horizonta
120.0 dBuV	/m								
110									
100									
90									
80									
70									
60									
50	1 X								
40	2 X								
30	X								
20									
10									
0.0	3550.00 6100.0	0 8650.00	11200.00	13750.00	16300.	.00 1885	50.00 214	100.00	26500.00 MHz
	Reading	Correct	Measure-						
	req. Level	Factor	ment		Margin				
M 4904.	1Hz dBu∨ 000 54.54	dB -10.32	dBuV/m 44.22	dBuV/m 74.00	dB -29.78	Detector peak	Comme	ent	
4904. 2 * 4904.		-10.32	31.94		-29.76	AVG			

## APPENDIX C BANDWIDTH



Test Mode	IEEE 802.11b			
Test Voltage	DC 32V			
5				
Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	10.04	14.64	500	Complies
2437	9.60	13.32	500	Complies
2462	10.12	13.84	500	Complies
		6 dB Bandwidth		
241	12 MHz	2437 MHz	2462 N	IHz
13         OFFace: 13/2         0           14         0         0         0           15         0         0         0         0           14         0         0         0         0         0           13         0         0         0         0         0         0           13         0         0         0         0         0         0         0           10         0	Makari I (TA) 20 data construction of the second s	Image: Second	10         off = 1   2   0         1           10         off = 1   2   0         1           10         -1   2   0         1           10         -2   1   1   0         1           10         -1   1   0         1           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0         -1   1   0           -30         -1   1   0	
Date: 30.DEC.2019 15:10:35		Date: 30.DEC.2019 15:17:53	Date: 30.DEC.2019 15:20:03	
241	12 MHz	99 % Occupied Bandwidt 2437 MHz	n 2462 N	147
A OFFACE 13 2 00     A OFFACE 2 412 00     A	рав 	30         OFF Not         3.3         2.00         OFF Not         3.00         OFF Not         3.00         OFF Not         3.00         OFF Not         0.00         OFF Not<	a off-set 112 dB 11 12 13 14 15 15 15 15 15 15 15 15 15 15	Image: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,



est Mode				
	IEEE 802.11g			
est Voltage	DC 32V			
Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	16.40	16.64	500	Complies
2437	16.48	16.84	500	Complies
2462	16.64	17.20	500	Complies
24 <sup>.</sup>	12 MHz	6 dB Bandwidth 2437 MHz	2462 N	1Hz
Nof 12 dom         *Ath 32 dom           11	1990 110 MER (PALA   [73]) 1997 2-5 W RANNON MER 1997 2-5 W RANNON	••••••••••••••••••••••••••••••••••••	1 12 0 12 12 12 12 12 12 12 12 12 12 12 12 12	
: 30.DEC.2019 15:23:10		Date: 30.DEC.2019 15:27:52	Date: 30.DEC.2019 15:29:30	
24	12 MHz	99 % Occupied Bandwidt 2437 MHz	n 2462 N	1H7
- 1		1       1	es	True     111     400     111       112     112     110     110       112     112     110     110       112     112     110     110       112     110     110     110       112     110     110     110       112     110     110     110       112     110     110     110       112     110     110     110       112     110     110     110       112     110     110     110       112     110     110     110       112     110     110     110       113     110     110     110       114     110     110     110       115     110     110     110       114     110     110     110       115     110     110     110       115     110     110     110       116     110     110     110       116     110     110     110       116     110     110     110       116     110     110     110       116     110     110     110       116     110     11



Test Mode	IEEE 802.11n (HT	20)		
Test Voltage	DC 32V			
Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	17.56	17.52	500	Complies
2437	17.32	17.72	500	Complies
2462	17.88	18.12	500	Complies
		6 dB Bandwidth		
241	2 MHz	2437 MHz	2462 M	
Inf         20 dim         *Atc. 20 dim           Inf         0 dim         0 dim         0 dim <th>*********************************</th> <th></th> <th>*340 147 190 190 190 190 190 190 190 190 190 190</th> <th>81 (13) 13 (20) 13 (20) 13 (20) 14 (20) 14</th>	*********************************		*340 147 190 190 190 190 190 190 190 190 190 190	81 (13) 13 (20) 13 (20) 13 (20) 14
		99 % Occupied Bandwidt		
	2 MHz	2437 MHz	2462 M	
***         1.2         200         ****         3.0         00           ***         1.2         00         1         1         0         1           ***         1.2         00         1         1         1         1         1           ***         1.2         00         1	2.1194000 000 Topp 1 (1.000) 000 (1.000) 0	************************************	* - 380 300 * 20 dbs * Att 30 db * 4tt 30	



Test Mode	IEEE 802.11n (HT	40)		
Test Voltage	DC 32V	•		
	•		1	
Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2422	36.48	36.56	500	Complies
2437	34.88	36.08	500	Complies
2452	35.12	36.24	500 Complies	
		6 dB Bandwidth		
242	22 MHz	2437 MHz	2452 N	IHz
	ник. ник.	Image: Second		an yan yan yan yan yan yan yan y
Date: 30.DBC.2019 15:41:57		99 % Occupied Bandwidt	Date: 30.DEC.2019 15:57:37	
242	22 MHz	2437 MHz	2452 N	lHz
bit f 20 dm         *Att 50 dm           10 office         *Att 50 dm           10 office         122 dm           10 office         122 dm           10 office         122 dm           10 office         122 dm           10 office         120 office           10 office         10 office <tr< td=""><td>-1.892 1.9182 Network [13] -1.972 2.05 as -1.972 2.05 as -1</td><td>**************************************</td><td>- 20 dBa - 20 dBa - 20 dBa - 21 d</td><td>in         6.47 (Mm)           intra (3.2000 Mm)         1.000 Mm)           intra (3.2000</td></tr<>	-1.892 1.9182 Network [13] -1.972 2.05 as -1.972 2.05 as -1	**************************************	- 20 dBa - 20 dBa - 20 dBa - 21 d	in         6.47 (Mm)           intra (3.2000 Mm)         1.000 Mm)           intra (3.2000
Date: 30.DEC.2019 15:44:43		Date: 30.DEC.2019 15:45:50	Date: 30.DBC.2019 15:58:53	

## APPENDIX D OUTPUT POWER

**3**TL



Test Mode	IEEE 802.11b			Tested Date 2019/12/31		
Test Voltage	DC 32V					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result	
2412	19.46	0.0883	30.00	1.0000	Complies	
2437	13.48	0.0223	30.00	1.0000	Complies	
2462	13.93	0.0247	30.00	1.0000	Complies	
Test Mode	IEEE 802.11g			ested Date	2019/12/31	
Test Voltage	DC 32V					
Frequency		Conducted	Limit	Limit		
(MHz)	Conducted Power (dBm)	Conducted Power (W)	(dBm)	(W)	Result	
2412	21.83	0.1524	30.00	1.0000	Complies	
2437	21.91	0.1552	30.00	1.0000	Complies	
2462	19.22	0.0836	30.00	1.0000	Complies	
	-					
Test Mode	IEEE 802.11n (HT20) Tested Date 2019/12/31					
Test Voltage	IEEE 802.11n (HT20) Te DC 32V			Sieu Dale	2019/12/31	
			-	1		
Frequency	Conducted Power			Limit	Result	
(MHz)	(dBm)	Power (W)	(dBm)	(W)		
2412	20.00	0.1000	30.00	1.0000	Complies	
2437	21.55	0.1429	30.00	1.0000	Complies	
2462	17.05	0.0507	30.00	1.0000	Complies	
Test Mode	IEEE 802.11n (HT40) Tested Date 2019/12/3			2019/12/31		
Test Voltage	DC 32V					
Fraguanay		• • • •	Limit	Limit		
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	(dBm)	(W)	Result	
2422	18.27	0.0671	30.00	1.0000	Complies	
2422	20.45	0.1109	30.00	1.0000	Complies	
		0.1265		1.0000	Complies	
2452	21.02	0 1.766	30.00			



# APPENDIX E POWER SPECTRAL DENSITY



Test Mode	IEEE 802	.11b			
Test Voltage	DC 32V				
Frequency		Power Density	Limit		
(MHz)		(dBm/3kHz)	(dBm)	Result	
2412		-7.66	8.00	Complies	
2437		-13.56	8.00	Complies	
2462		-14.47	8.00	Complies	
2412 MHz		2437 26 dtm 30 dtm 30 dtm 31 dtm 32 dtm	MHz         Image: 100 (mm)	2462 MHz	
*28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *28/3         3.08         *21/3         *28/3         3.08         *21/3         *28/3         3.08         *21/3					
Test Mode Test Voltage Frequen	IEEE 802 DC 32V	.11g Power Density	Limit	-	
(MHz)	)	(dBm/3kHz)	(dBm)	Result	
2412		-13.07	8.00	Complies	
2437		-12.82	8.00	Complies	
2462		-18.50	8.00	Complies	
· 🏠		30 Offwet 112 389	2 2 383 - 12121 2 4 384 - 12121 2 4 4 - 12121 diffe 2 4 4 - 12121 diffe 2 4 4 - 12121 diffe - 121 - 12121 dif	Provide and the second seco	
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Test Mode	IEEE 802	2.11n (HT20)			
Test Voltage	DC 32V				
Freque	ncy	Power Density	Limit		
(MHz)		(dBm/3kHz)	(dBm)		Result
2412		-15.25	8.00		Complies
2437		-13.44	8.00		Complies
2462		-20.18			Complies
24	12 MHz	243	7 MHz		2462 MHz
- 30		12 Office 312 00	244 2 3.45 - 2.171 1 	Ref 10 dBm           10 offset 1112 of           10 offset 1112 offset 1112 offset 1112 offset           10 offset 1112 offset	
est Mode est Voltage Freque	DC 32V	2.11n (HT40) Power Density	Limit		Result
(MHz		(dBm/3kHz)	(dBm)		
2422			-21.07 8.00		Complies
2437		-17.79 -18.10	-17.79         8.00           -18.10         8.00		Complies Complies
2402	_	-10.10	0.00		Complies
Jac         30 cfb           Jac         30 cfb           H         112 cfb           H         12 cfb		Le contraction de la contracti	7 MH2	Not         30         dBm           11         11         11         11           11         11         11         11         11           12         11         11         11         11           14         11         11         11         11         11           10         11         11         11         11         11         11           10         11	2452 MH2         1
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## APPENDIX F ANTENNA CONDUCTED SPURIOUS EMISSIONS



