## Shenzhen Toby Technology Co., Ltd.

Report No.: TBR-C-202209-0147-252

Page: 1 of 29

# **FCC Radio Test Report**

FCC ID: 2BAQT-ITRONBELL

**Report No.** : TBR-C-202209-0147-252

**Applicant**: iTronics Limited

**Equipment Under Test (EUT)** 

**EUT Name** : iTronBELL

Model No. : iTronBELL

Serial Model No. : ----

Brand Name : iTron

Sample ID : 202209-0147-1-1 & 202209-0147-1-2

**Receipt Date** : 2023-03-31

**Test Date** : 2023-03-31 to 2023-04-25

**Issue Date** : 2023-04-25

Standards : FCC Part 15, Subpart C 15.249

**Test Method** : ANSI C63.10: 2013

Conclusions : PASS

In the configuration tested, the EUT complied with the standards specified above,

The EUT technically complies with the FCC requirements

Test/Witness Engineer :

**Engineer Supervisor** 

Engineer Manager

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This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



## Contents

CON	NTENTS	2
1.	GENERAL INFORMATION ABOUT EUT	5
	1.1 Client Information	5
	1.2 General Description of EUT (Equipment Under Test)	5
	1.3 Block Diagram Showing the Configuration of System Tested	6
	1.4 Description of Support Units	6
	1.5 Description of Test Mode	7
	1.6 Description of Test Software Setting	7
	1.7 Measurement Uncertainty	8
	1.8 Test Facility	
2.	TEST SUMMARY	10
3.	TEST SOFTWARE	10
4.	TEST EQUIPMENT	
5.	CONDUCTED EMISSION TEST	13
	4.1 Test Standard and Limit	13
	4.2 Test Setup	13
	4.3 Test Procedure	
	4.4 EUT Operating Mode	14
	4.5 Test Data	14
6.	RADIATED EMISSION TEST	15
	5.1 Test Standard and Limit	15
	5.2 Test Setup	16
	5.3 Test Procedure	17
	5.4 EUT Operating Condition	18
	5.5 Test Data	18
7.	BANDWIDTH TEST	19
	6.1 Test Setup	
	6.2 Test Procedure	
	6.3 EUT Operating Condition	19
	6.4 Test Data	19
8.	ANTENNA REQUIREMENT	20
	7.1 Standard Requirement	20



# Report No.: TBR-C-202209-0147-252 Page: 3 of 29

7.2 Antenna Connected Construction	20
7.3 Result	20
ATTACHMENT A CONDUCTED EMISSION TEST DATA	21
ATTACHMENT B RADIATED EMISSION TEST DATA	23
ATTACHMENT CBANDWIDTH TEST DATA	29





## **Revision History**

Report No.	Version	Description	Issued Date
TBR-C-202209-0147-252	Rev.01	Initial issue of report	2023-04-25
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Page: 5 of 29

## 1. General Information about EUT

## 1.1 Client Information

Applicant		iTronics Limited
Address	:	PO BOX 303 264, North Harbour, Auckland 0751, New Zealand
Manufacturer		iTronics Limited
Address		PO BOX 303 264, North Harbour, Auckland 0751, New Zealand

## 1.2 General Description of EUT (Equipment Under Test)

EUT Name		iTronBELL	iTronBELL		
Model(s)	=(	iTronBELL	TronBELL		
Model Difference	:				
THUE		Operation Frequency: 915MHz			
	1	Number of Channel:	1 Channel		
Product	-	Out Power:	77.71dBuV/m@3m Peak		
Description	K	Antenna Gain:	-1.17dBi PCB Antenna		
District Annual Control	M	Modulation Type:	FSK		
ann's s		Data Rate:	40kbps		
Power Rating		Input: DC 5V, 1.5A	nput: DC 5V, 1.5A		
Power Rating	•	DC 3.7V by 5200mAh Rechargeable Li-ion battery			
<b>Software Version</b>	:		WORLD WORLD		
<b>Hardware Version</b>	0		Please refer to the User's Manual		
Connecting I/O Port(S)		Please refer to the User			

#### Note:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



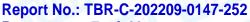
Report No.: TBR-C-202209-0147-252 Page: 6 of 29

## 1.3 Block Diagram Showing the Configuration of System Tested

TX Mode	CONTRACT OF THE PARTY OF THE PA	(TOB)	anos
		7	
	EUT		
	L	J	

1.4 Description of Support Units

The EUT has been test as independent unit.





Page: 7 of 29

#### 1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

opeoutery.						
For Conducted Test						
Final Test Mode Description						
Mode 1	TX Mode(915MHz)					
	For Radiated Test					
Final Test Mode	Final Test Mode Description					
Mode 1	TX Mode(915MHz)					
Mode 1	TX Mode(915MHZ)					

#### Note:

For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

- (1) According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels.
- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

## 1.6 Description of Test Software Setting

During testing channel & Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF mode.

Test Software Version	N/A
Frequency	915MHz
FSK	DEF





Page: 8 of 29

## 1.7 Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U <sub>Lab</sub> )
	Level Accuracy:	
Conducted Emission	9kHz~150kHz	±3.42 dB
4000	150kHz to 30MHz	±3.42 dB
Dadiated Emission	Level Accuracy:	. 4 CO dD
Radiated Emission	9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy:	.4.40 dD
Radiated Emission	30MHz to 1000 MHz	±4.40 dB
Dedicted Emission	Level Accuracy:	±4.20 dB
Radiated Emission	Above 1000MHz	±4.20 UB



Page: 9 of 29

### 1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

#### **CNAS (L5813)**

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

#### A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

#### IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



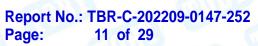
## 2. Test Summary

THU:	A Allu			
Standard Section	Test Item	Tool November (a)		Damani
FCC	rest item	Test Sample(s)	Judgment	Remark
15.203	Antenna Requirement	202209-0147-1-2	PASS	N/A
15.205	Restricted Bands	202209-0147-1-1	PASS	N/A
15.207	AC Power Conducted Emission	202209-0147-1-1	PASS	N/A
15.249 &15.209	Radiated Spurious Emission	202209-0147-1-2	PASS	N/A
15.215(C)	20dB Bandwidth	202209-0147-1-2	PASS	N/A

Note: N/A is an abbreviation for Not Applicable.

## 3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
RF Conducted Measurement	MTS-8310	MWRFtest	V2.0.0.0
RF Test System	JS1120	Tonscend	V2.6.88.0336





## 4. Test Equipment

<b>Conducted Emission</b>	on Test				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jun. 23, 2022	Jun. 22, 2023
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jun. 23, 2022	Jun. 22, 2023
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jun. 22, 2022	Jun. 21, 2023
LISN	Rohde & Schwarz	ENV216	101131	Jun. 22, 2022	Jun. 21, 2023
ISN	SCHWARZBECK	NTFM 8131	8131-193	Jun. 22, 2022	Jun. 21, 2023
ISN	SCHWARZBECK	CAT3 8158	cat3 5158-0094	Jun. 22, 2022	Jun. 21, 2023
ISN	SCHWARZBECK	NTFM5158	NTFM5158 0145	Jun. 22, 2022	Jun. 21, 2023
ISN	SCHWARZBECK	CAT 8158	cat5 8158-179	Jun. 22, 2022	Jun. 21, 2023
Radiation Emission	n Test (B Site)				•
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 01, 2022	Aug. 31, 2023
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 23, 2022	Jun. 22, 2023
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472/008	Feb. 23, 2023	Feb.22, 2024
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Dec. 05, 2021	Dec. 04, 2023
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	Feb. 26, 2022	Feb.25, 2024
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Jun. 26, 2022	Jun.25, 2024
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jun. 26, 2022	Jun.25, 2024
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Sep. 01, 2022	Aug. 31, 2023
HF Amplifier	Tonscend	TAP051845	AP21C806141	Sep. 01, 2022	Aug. 31, 2023
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Sep. 01, 2022	Aug. 31, 2023
Antenna Conducte	d Emission				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jun. 23, 2022	Jun. 22, 2023
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 23, 2022	Jun. 22, 2023
MXA Signal Analyzer	KEYSIGT	N9020B	MY60110172	Sep. 01, 2022	Aug. 31, 2023
MXA Signal Analyzer	Agilent	N9020A	MY47380425	Sep. 01, 2022	Aug. 31, 2023
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 01, 2022	Aug. 31, 2023
Analog Signal Generator	Agilent	N5181A	MY48180463	Sep. 01, 2022	Aug. 31, 2023
Vector Signal Generator	KEYSIGT	N5182B	MY59101429	Sep. 01, 2022	Aug. 31, 2023
Analog Signal Generator	KEYSIGHT	N5173B	MY61252685	Dec. 15, 2022	Dec. 14, 2023
W	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 01, 2022	Aug. 31, 2023
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 01, 2022	Aug. 31, 2023
IXI FUWEI SEIISUI	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 01, 2022	Aug. 31, 2023
11.7	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 01, 2022	Aug. 31, 2023
RF Control Unit	Tonsced	JS0806-1	21C8060380	N/A	N/A
RF Control Unit	Tonsced	JS0806-2	21F8060439	Sep. 01, 2022	Aug. 31, 2023
Band Reject Filter Group	Tonsced	JS0806-F	21D8060414	Jun. 23, 2022	Jun. 22, 2023
Power Control Box	Tonsced	JS0806-4ADC	21C8060387	N/A	N/A



Report No.: TBR-C-202209-0147-252 Page: 12 of 29

Wideband Radio Comunication Tester	Rohde & Schwarz	CMW500	144382	Sep. 01, 2022	Aug. 31, 2023
Universal Radio Communication Tester	Rohde&Schwarz	CMW500	168796	Jun. 23, 2022	Jun. 22, 2023
Temperature and Humidity Chamber	ZhengHang	ZH-QTH-1500	ZH2107264	Jun. 22, 2022	Jun. 21, 2023



Page: 13 of 29

## 5. Conducted Emission Test

### 4.1 Test Standard and Limit

4.1.1Test Standard FCC Part 15.207

#### 4.1.2 Test Limit

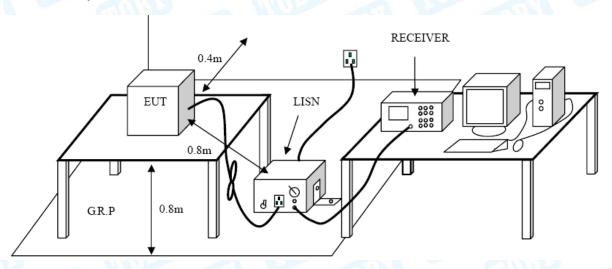
#### **Conducted Emission Test Limit**

	Maximum RF Line Voltage (dBμV)				
Frequency	Quasi-peak Level	Average Level			
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

#### Notes:

- (1) \*Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2 Test Setup



#### 4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back



Page: 14 of 29

and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN is at least 80 cm from nearest part of EUT chassis.

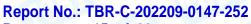
The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

### 4.4 EUT Operating Mode

Please refer to the description of test mode.

#### 4.5 Test Data

Please refer to the Attachment A.





Page: 15 of 29

## 6. Radiated Emission Test

## 5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.209

5.1.2 Test Limit

#### **Radiated Emission Limit**

	The state of the s					
Frequency (MHz	Field Strength (microvolt/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				
Above 960	500	3				

#### **Radiated Emission Limit**

Frequency	Distance Meters (at 3m)			
(MHz)	Peak	Average		
Above 1000	74	54		

#### Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(Uv/m)

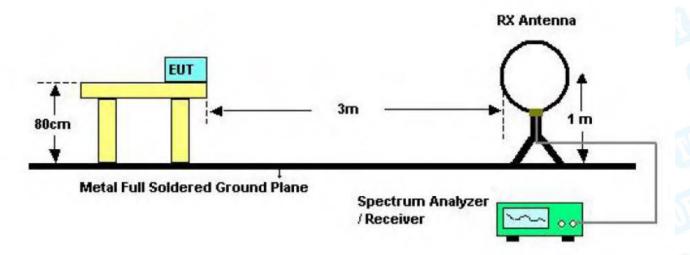
## Limits of radiated emission measurement (15.249)

FCC Part 15 (15.249), Subpart C					
Limit	Frequency Range (MHz)				
Field strength of fundamental	002,020				
50 mV/m (94 dBμV/m) @ 3 m	902~928				
Field strength of fundamental	Delay 000 and Abaya 000				
0.5 mV/m (54 dB <sub>μ</sub> V/m) @ 3 m	Below 902 and Above 928				

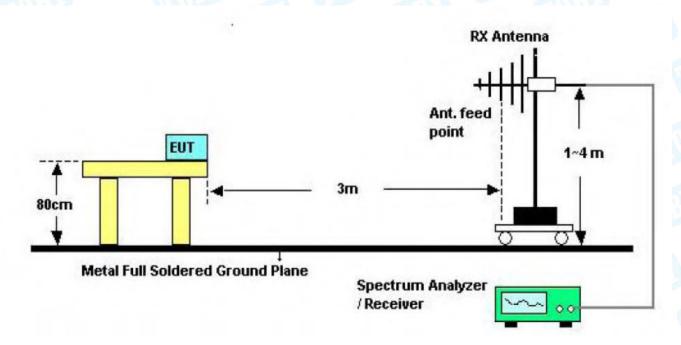


Page: 16 of 29

## 5.2 Test Setup



Below 30MHz Test Setup



Bellow 1000MHz Test Setup

Report No.: TBR-C-202209-0147-252 Page: 17 of 29



Antenna tower

Horn antenna

Spectrum analyzer

Turntable 1.5m A 30cm

Pre-amp

Above 1GHz Test Setup

#### 5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency Below 1GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.



Page: 18 of 29

## 5.4 EUT Operating Condition

The EUT was set to Continual Transmitting in maximum power, and new batteries are used during testing.

## 5.5 Test Data

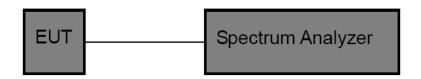
Please refer to the Attachment B.



Page: 19 of 29

## 7. Bandwidth Test

### 6.1 Test Setup



#### 6.2 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Bandwidth: RBW=100 kHz, VBW=300kHz.

(3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.

### 6.3 EUT Operating Condition

The EUT was set to continuously transmitting for the Bandwidth Test.

#### 6.4 Test Data

Please refer to the Attachment C.



Page: 20 of 29

## 8. Antenna Requirement

## 7.1 Standard Requirement

FCC Part 15.203

7.1.1 Standard

### 7.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### 7.2 Antenna Connected Construction

The gains of the antenna used for transmitting is -1.17dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

#### 7.3 Result

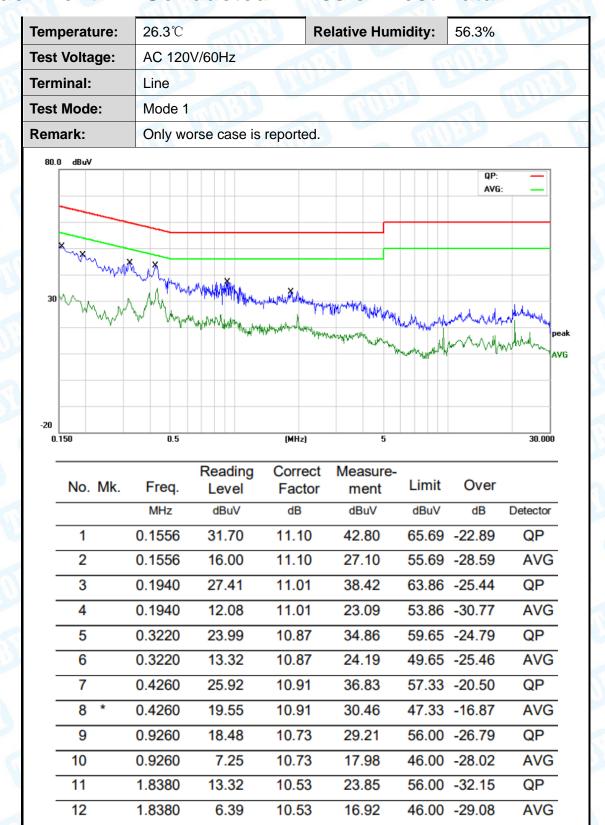
The EUT antenna is a FPC Antenna. It complies with the standard requirement.

An	tenna Type		
✓ Permanent attac	ched antenna		000
□ Unique connecto	or antenna		TO THE
□ Professional in	nstallation a	ntenna	1003



Page: 21 of 29

## **Attachment A-- Conducted Emission Test Data**



#### Remark

- 1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Margin (dB) =QuasiPeak/Average (dBuV)-Limit (dBuV)



Temperature:	<b>26.3</b> ℃		a W	Relative Hu	ımidity:	56.3%	6
Test Voltage:	AC 12	20V/60Hz			(1)		PHO
Terminal:	Neutra	al			m.	M'S	
Test Mode:	Mode	1	ARIE		1 6		
Remark:	Only v	vorse case i	s reported.	OHO!			
80.0 dBuV							
30	My My Marke	March Malling Salvan	gharry John , the good for my	TON MATTER STEELS AND A COMME	manda and and and and and and and and and	More Ave	man property of the state of th
0.150 No. Mk.	o.5	Reading Level	(MHz) Correct Factor	Measure- ment	Limit	Over	30.000
0.150		-	Correct	Measure-	Limit	Over dB	30.000 Detector
0.150	Freq.	Level	Correct Factor	Measure- ment	dBuV		
0.150 No. Mk.	Freq.	Level	Correct Factor	Measure- ment dBuV	dBuV	dB	Detector
0.150 No. Mk.	Freq. MHz 0.1590	dBuV 30.44	Correct Factor dB 11.09	Measure- ment dBuV 41.53	dBuV 65.51 55.51	dB -23.98	Detector QP
No. Mk.	Freq. MHz 0.1590 0.1590	dBuV 30.44 15.07	Correct Factor dB 11.09 11.09	Measure- ment dBuV 41.53 26.16	dBuV 65.51 55.51 63.20	dB -23.98 -29.35	Detector QP AVG
No. Mk.  1 2 3	Freq. MHz 0.1590 0.1590 0.2100	dBuV 30.44 15.07 25.70	Correct Factor dB 11.09 11.09	Measure- ment dBuV 41.53 26.16 36.69	dBuV 65.51 55.51 63.20 53.20	dB -23.98 -29.35 -26.51	Detector QP AVG QP
No. Mk.  1 2 3 4	Freq. MHz 0.1590 0.1590 0.2100 0.2100	dBuV 30.44 15.07 25.70 10.21	Correct Factor dB 11.09 11.09 10.99	Measure- ment dBuV 41.53 26.16 36.69 21.20	dBuV 65.51 55.51 63.20 53.20 60.64	dB -23.98 -29.35 -26.51 -32.00	Detector QP AVG QP AVG QP
No. Mk.  1 2 3 4 5	Freq. MHz 0.1590 0.1590 0.2100 0.2100 0.2860	Level dBuV 30.44 15.07 25.70 10.21 22.27	Correct Factor dB 11.09 11.09 10.99 10.99	Measure- ment  dBuV  41.53  26.16  36.69  21.20  33.15	dBuV 65.51 55.51 63.20 53.20 60.64 50.64	dB -23.98 -29.35 -26.51 -32.00 -27.49	Detector QP AVG QP AVG
No. Mk.  1 2 3 4 5	Freq. MHz 0.1590 0.1590 0.2100 0.2100 0.2860 0.2860	Level dBuV 30.44 15.07 25.70 10.21 22.27 9.14	Correct Factor dB 11.09 11.09 10.99 10.99 10.88	Measure- ment  dBuV  41.53  26.16  36.69  21.20  33.15  20.02	dBuV 65.51 55.51 63.20 53.20 60.64 50.64 57.33	dB -23.98 -29.35 -26.51 -32.00 -27.49 -30.62	Detector QP AVG QP AVG QP AVG
No. Mk.  1 2 3 4 5 6 7	Freq. MHz 0.1590 0.1590 0.2100 0.2100 0.2860 0.2860 0.4260	Level dBuV 30.44 15.07 25.70 10.21 22.27 9.14 25.99	Correct Factor dB 11.09 11.09 10.99 10.99 10.88 10.88	Measure- ment  dBuV  41.53  26.16  36.69  21.20  33.15  20.02  36.90	dBuV 65.51 55.51 63.20 53.20 60.64 50.64 57.33 47.33	dB -23.98 -29.35 -26.51 -32.00 -27.49 -30.62 -20.43	Detector QP AVG QP AVG QP AVG QP
No. Mk.  1 2 3 4 5 6 7 8 *	Freq. MHz 0.1590 0.1590 0.2100 0.2100 0.2860 0.2860 0.4260 0.4260	Level dBuV 30.44 15.07 25.70 10.21 22.27 9.14 25.99 19.47	Correct Factor dB 11.09 11.09 10.99 10.88 10.88 10.91	Measure- ment  dBuV  41.53  26.16  36.69  21.20  33.15  20.02  36.90  30.38	dBuV 65.51 55.51 63.20 53.20 60.64 50.64 57.33 47.33	dB -23.98 -29.35 -26.51 -32.00 -27.49 -30.62 -20.43 -16.95	Detector QP AVG QP AVG QP AVG AVG
No. Mk.  1 2 3 4 5 6 7 8 *	Freq. MHz 0.1590 0.1590 0.2100 0.2100 0.2860 0.2860 0.4260 0.4260 1.0620	Level dBuV 30.44 15.07 25.70 10.21 22.27 9.14 25.99 19.47 16.58	Correct Factor dB 11.09 11.09 10.99 10.88 10.88 10.91 10.91 10.67	Measure- ment dBuV 41.53 26.16 36.69 21.20 33.15 20.02 36.90 30.38 27.25	dBuV 65.51 55.51 63.20 53.20 60.64 57.33 47.33 56.00 46.00	dB -23.98 -29.35 -26.51 -32.00 -27.49 -30.62 -20.43 -16.95 -28.75	Detector QP AVG QP AVG QP AVG QP AVG QP AVG

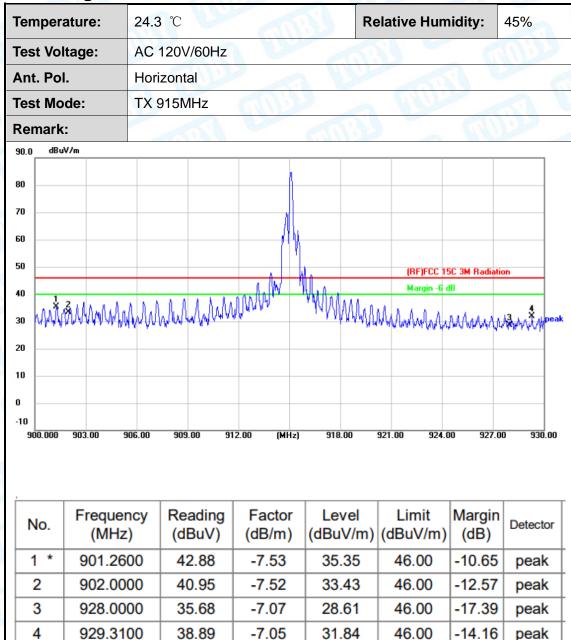
- Remark:
  1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Margin (dB) =QuasiPeak/Average (dBuV)-Limit (dBuV)



Page: 23 of 29

## **Attachment B-- Radiated Emission Test Data**

## Field Strength of the Fundamental



**Emission Level= Read Level+ Correct Factor** 





Tempera	ature:	24.3	3°C		Re	elative Hum	idity:	45%
Test Vol	tage:	AC	120V/60Hz			100		AHU
Ant. Pol		Vertical						
Test Mo	de:	TX 915MHz						Mill State
Remark	:				CAN.		2 1	N. C.
90.0 dBu	V/m							
80								
70								
				M				
60								
				N I				
50				1 1			C 3M Radiat	ion
50 40 30	&MMMM.	MM	mahahah		Mulvulin	Margin -6 d	IB	
30	MMMM	Mah	Mahahah	1,000	MMMM	Margin -6 d	IB	
20						Margin -6 d	B twoty where W	v∳vMv <sup>A</sup> \pea
40 30 20 10		A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.		12.00 (MHz)		Margin -6 d	B twoty where W	v∯vM\r√ <sup>j</sup> \
40 30 20 10 0		906.00 ncy				Margin -6 d	Margin	pea 00 930.00
40 30 20 10 0 -10 900.000	903.00 s	ncy	909.00 91	2.00 (MHz)	918.00	Margin -6 d	Margin	Detector
40 30 20 10 0 -10 900.000	903.00 s	ncy :)	Reading (dBuV)	Factor (dB/m)	Level	921.00 924.0  Limit (dBuV/m)	Margin (dB)	Detector peak
10 0 -10 900.000	903.00 s Frequer (MHz	ncy 2) 00	909.00 91  Reading (dBuV)  41.08	Factor (dB/m) -7.53	Level (dBuV/m) 33.55	921.00 924.0  Limit (dBuV/m) 46.00	Margin (dB)	Detector peak

**Emission Level= Read Level+ Correct Factor** 



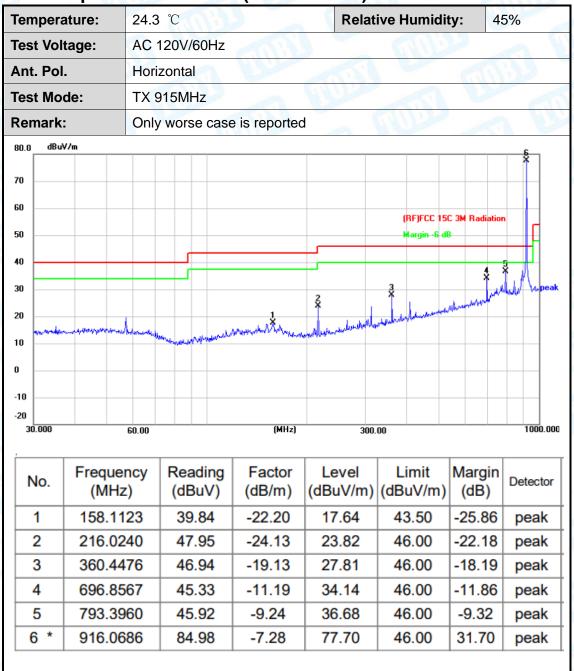
Page: 25 of 29

## Radiated Spurious Emission (9 KHz~30 MHz)

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

### Radiated Spurious Emission (Below 1 GHz)







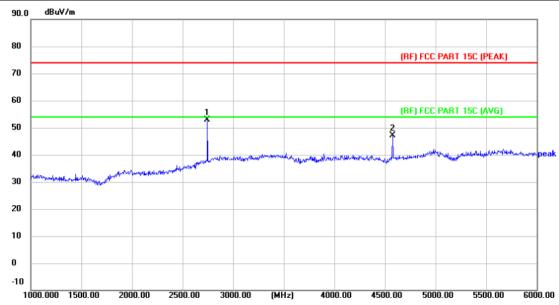
Test Voltage: AC				24.3 ℃ Relative Humidity: 45%								
				AC 120V/60Hz								
				Vertical								
Test I	Mod	le:	TX s	TX 915MHz								
Rema	ark:		Only	y wo	rse ca	se is reporte	d		a Y	N. Carrie		
80.0	dBuV.	/m										
70												
60												
								,	5C 3M Radiat	tion		
50								Margin -6	dB	<del></del>		
40					<u> </u>				4 *	*		
30							1 *	2 3 X	J. January	pthyllyllyl Jupe		
- 1												
20								the same beginning the property of	artidakir-kirrappus			
~#	Marantan	hattaretering party	ميانون المراد والمراد	Vert line grand	eroetakiseko	physioleological with the standing	wante a market of	that here were before for the special res	/MAGNAGA ANT			
20	Muruha	, markenson de la mark	ميا المعادمة	Vec/18/hangelecok	and the state of t	phillippenson of the standing		the description of the second or the second	pakera			
10	Maradan	يستلامون أغرافه أعمرا	منيات طف البيار حالماً ل مرد	Vac Milwage and	eron Made har	or to the second of the second se		Her have been been been and and the second	, middle see a see			
10 -10 -20	Maranton	market and the second second	مياه المرابع ا	entering in	en de de la company				pulation			
10	w	politicology, his bangle	60.00	withing	ann de de la companya	minulinan grana Albana, Ma		300.00	, sud of the second	1000.0		
10 -10 -20		Freque (MHz	ncy		eadin(	(MHz)	Level	300.00	Margin			
10 -10 -20 30.00		Freque	ncy z)	(d	eading	(MHz)	Level	300.00 Limit n) (dBuV/m)	Margin	Detector		
10 0 -10 -20 30.00		Freque (MHz	ncy z)	(d	eadino	(MHz) Factor (dB/m)	Level (dBuV/r	300.00 Limit (dBuV/m) 46.00	Margin (dB)	Detector  peak		
10 0 -10 -20 30.00 No.		Freque (MHz 216.02	ncy z) 240	(d 4	eadino	(MHz) Factor (dB/m) -24.13	Level (dBuV/r 25.10	Limit (dBuV/m) 46.00 46.00	Margin (dB) -20.90	Detector  peak peak		
10 0 -10 -20 30.00 No.		Freque (MHz 216.02 360.44	240 176	(d 4 4	eadino (BuV) 9.23 6.52	(MHz) Factor (dB/m) -24.13 -19.13	Level (dBuV/r 25.10 27.39	Limit (dBuV/m) 46.00 46.00 46.00	Margin (dB) -20.90	Detector  peak peak peak		
10 0 -10 -20 30.00 No.		Freque (MHz 216.02 360.44 408.94	240 176 160	(d 4 4 4	eadin(  BuV)  9.23  6.52  4.78	(MHz) Factor (dB/m) -24.13 -19.13 -17.67	Level (dBuV/r 25.10 27.39 27.11	Limit (dBuV/m) 46.00 46.00 46.00 46.00	Margin (dB) -20.90 -18.61 -18.89	Detector  peak peak peak		



Page: 27 of 29

## Radiated Spurious Emission (Above 1 GHz)

26 ℃	Relative Humidity:	54%
AC 120V/60Hz		
Horizontal		
TX 915MHz		All Control
No report for the emissio prescribed limit.	n which more than 10 dB below	the
	AC 120V/60Hz  Horizontal  TX 915MHz  No report for the emissio	AC 120V/60Hz  Horizontal  TX 915MHz  No report for the emission which more than 10 dB below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2745.000	67.57	-14.60	52.97	74.00	-21.03	peak
2	4575.000	58.09	-11.02	47.07	74.00	-26.93	peak

**Emission Level= Read Level+ Correct Factor** 

Note: The average measurement was not performed when the peak measured data under the limit of average detection.





10

-10

1000.000 1500.00

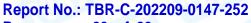
Ten	nperature:	26 ℃				Relati	ve Hum	idity:	54%	
Tes	est Voltage: AC 120V/60Hz								AMO	l st
Ant	. Pol.	Vertical	All Co		6	6	6	1183		Pa.
Tes	t Mode:	TX 915N	ИHz	MA	Vision III		1 6			3
Rer	mark:	No repoi		emissio	n which	more tha	an 10 dB	B below t	he	
90.0	dBuV/m									1
80							(RF) FCC	PART 15C (I	PEAK)	
70										
60			1				(RF) FCC	PART 15C (/	vG)	
50 40				على المساور المارية ال		Almata	2 American de la constante de	Mary probbles de	granned gridge all and	peal
30	mondelimentaliment	المراجعة الم	Special Section Sectio	MANAGEM AT AL	and the second	h-water a neglective and the	W. Amhr. A. A.			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)		Margin (dB)	Detector
1 *	2745.000	68.37	-14.60	53.77	74.00	-20.23	peak
2	4575.000	59.10	-11.02	48.08	74.00	-25.92	peak

4000.00

**Emission Level= Read Level+ Correct Factor** 

Note: The average measurement was not performed when the peak measured data under the limit of average detection.





Page: 29 of 29

## **Attachment C--Bandwidth Test Data**

Channel Frequency (MHz)	20dB Bandwidth (MHz)
915	0.06703



----END OF REPORT----