

Shenzhen Toby Technology Co., Ltd.



Report No.: TBR-C-202209-0054-2

Page: 1 of 40

FCC Radio Test Report FCC ID: 2A7ZM-M7MICROPHONE

Report No. : TBR-C-202209-0054-2

Applicant : JBU GLOBAL LLC

Equipment Under Test (EUT)

EUT Name : Ostinato M7 Microphone

Model No. : Ostinato M7 Microphone

Series Model No. : ----

Brand Name : MASINGO

Sample ID : 202209-0054-1-1#& 202209-0054-1-2#

Receipt Date : 2022-09-06

Test Date : 2022-09-06 to 2022-11-25

Issue Date : 2022-11-25

Standards : FCC Part 15, Subpart C (15.236)

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 :

Seven Wu

Engineer Supervisor :

Ivan Su

Engineer Manager

Ray Lai

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

Report No.: TBR-C-202209-0054-2 Page: 2 of 40

Contents

COI	NTENTS	2
1.	GENERAL INFORMATION ABOUT EUT	5
	1.1 Client Information	5
	1.2 General Description of EUT (Equipment Under Test)	5
	1.4 Description of Support Units	
	1.5 Description of Test Mode	
	1.6 Description of Test Software Setting	7
	1.7 Measurement Uncertainty	8
	1.8 Test Facility	8
2.	TEST SUMMARY	9
3.	TEST SOFTWARE	9
4.	TEST EQUIPMENT	
5.	CONDUCTED EMISSION TEST	
	5.1 Test Standard and Limit	
	5.2 Test Setup	
	5.3 Test Procedure	
	5.4 Deviation From Test Standard	
	5.5 EUT Operating Mode	
	5.6 Test Data	
6.	RF OUTPUT POWER TEST	13
	6.1 Test Standard and Limit	
	6.2 Test Setup	
	6.3 Test Procedure	
	6.4 Deviation From Test Standard	
	6.5 EUT Operating Condition	14
	6.6 Test Data	
7.	BANDWIDTH TEST	15
	7.1 Test Standard and Requirement	
	7.2 Test Setup	
	7.2 Test Procedure	
	7.4 Deviation From Test Standard	15
	7.5 EUT Operating Condition	
	7.6 Test Data	
8.	EMISSION MASK TEST	16
	8.1 Test Standard	16
	8.2 Test Limit	
	8.3 Test Setup	16
	8.4 Test Procedure	
	8.5 Deviation From Test Standard	17
	8.6 Test Data	17





Report No.: TBR-C-202209-0054-2 Page: 3 of 40

9.	RADIATED SPURIOUS EMISSION TEST	18
	9.1 Test Standard and Limit	
	9.2 Test Setup	
	9.3 Test Procedure	
	9.4 Deviation From Test Standard	19
	9.5 Test Data	19
10.	FREQUENCY STABILITY	20
	10.1 Test Standard and Limit	20
	10.2 Test Setup	
	10.3 Test Procedure	
	10.4 Deviation From Test Standard	20
	10.5 Test Data	20
ATT	ACHMENT APOWER OUTPUT TEST DATA	21
ATT	ACHMENT BBANDWIDTH TEST DATA	22
	ACHMENT CEMISSION MASK TEST DATA	
ATT	ACHMENT DRADIATED SPURIOUS EMISSION TEST DATE	26
	ACHMENT EFREQUENCY STABILITY TEST DATA	





Report No.: TBR-C-202209-0054-2 Page: 4 of 40

Revision History

Report No.	Version	Description	Issued Date
TBR-C-202209-0054-2	Rev.01	Initial issue of report	2022-11-25
(B)	4017		
33 (0)	3	TOWN THE REAL PROPERTY.	
anis S	MODI	The state of the s	
	1087	TOP I	
	133		MEN
	2 400		
100			6000
THE PARTY OF THE P	The same of	Will work	TUD
Die Contraction			
MOIN TO	OH INC.		4030





Page: 5 of 40

1. General Information about EUT

1.1 Client Information

Applicant	: (JBU GLOBAL LLC
Address		19416 NE 26th Ave, 114B, Miami, Florida 33180, United States
Manufacturer		New Tech Development Co,Ltd
Address		Room 301, Building 2000081, Shangwei IndustrialZone, Zhangkengjing Community, Guanhu Street, Longhua District, Shenzhen. China.

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:(Ostinato M7 Microphone			
Models No.	:	Ostinato M7 Microphone			
Model Difference	Ŀ				
20137		Operation Frequency: 565-604MHz			
Product		Number of Channel: 3 Channels			
Description	Ŕ	Antenna Gain:	1.72 dBi Internal antenna		
Mary M.		Equipment System:	Digital systems		
Power Rating	: 1.5V AA*2 battery				
Software Version		V1.0			
Hardware Version	:	 V2.0 The antenna gain provided by the applicant, the verified for the RF conduction test and adapter provided by TOBY test lab. 			
Remark	:				

Note:

Applicable Standards: FCC CFR 47 Part 2, & 15, KDB 206256 D01 vO2, ANSI C63.10- 2013, ANSI C63.26 2015

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





Report No.: TBR-C-202209-0054-2 Page: 6 of 40

(2) Channel List:

Channel	Frequency (MHz)	
01	565	
02	584	
03	604	

TX Mode

EUT		
	•	





Page: 7 of 40

1.4 Description of Support Units

IN A REAL PROPERTY.							
Equipment Information							
Name	Name Model FCC ID/SDOC Manufacturer Used "√"						
005	A Comment	7	33 6	0055			
Cable Information							
Number Shielded Type Ferrite Core Length Note							

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.

For Radiated Test					
Final Test Mode	Description				
Mode 1	TX Mode(Channel 01/02/03)				

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

Control by pressing the button. 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.





Page: 8 of 40

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 _{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.50 dB ±3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB

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.





Report No.: TBR-C-202209-0054-2 Page: 9 of 40

2. Test Summary

FCC Part 15 Subpart C(15.236)					
Standard Section	Test Item	Test Sample(s)	Judgment	Remark	
15.207(a)	Conducted Emission	202209-0054-1-1#	PASS	N/A	
15.236(d)(2)	RF Power Output	202209-0054-1-2#	PASS	N/A	
15.236(f)(2)	Occupied Bandwidth	202209-0054-1-2#	PASS	N/A	
15.236(g) 8.3 of ETSI EN 300 422-1	Emission Mask	202209-0054-1-2#	PASS	N/A	
15.236(g) 8.4 of ETSI EN 300 422-1	(1) Radiated Spurious Emission	202209-0054-1-2#	PASS	N/A	
15.236(f)(3)	Frequency Stability vs. Temperature Frequency Stability vs. Voltage	202209-0054-1-2#	PASS	N/A	

3. Test Software

Test Item Test Software		Manufacturer	Version No.	
Conducted Emission	EZ-EMC	EZ	CDI-03A2	
Radiation Emission	EZ-EMC	EZ	FA-03A2RE	





Report No.: TBR-C-202209-0054-2 Page: 10 of 40

4. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Equipment Section					
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jun. 23, 2022	Jun. 22, 2023
RF Switching Unit	Compliance	RSU-A4	34403	Jun. 23, 2022	Jun. 22, 2023
RF Switching Unit	Direction Systems	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
Radiation Emission				,	
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 23, 2022	Jun. 22, 2023
MXA Signal Analyzer	Agilent	N9020A	MY47380425	Sep. 01, 2022	Aug. 31, 2023
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jun. 23, 2022	Jun. 22, 2023
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472	Feb. 26, 2022	Feb.25, 2023
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Feb. 27, 2022	Feb. 26, 2024
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Dec. 05, 2021	Dec. 04, 2023
Horn Antenna	ETS-LINDGREN	3117	00143207	Feb. 26, 2022	Feb. 25, 2024
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	May 20, 2021	May 19, 2023
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 26, 2022	Feb. 25, 2024
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jun. 26, 2022	Jun.25, 2024
Pre-amplifier	SONOMA	310N	185903	Feb. 26, 2022	Feb. 25, 2023
Pre-amplifier	HP	8449B	3008A00849	Feb. 26, 2022	Feb.25, 2023
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 Conducted	I 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	Agilent	N9020A	MY49100060	Sep. 01, 2022	Aug. 31, 2023
Spectrum Analyzer	KEYSIGT	N9020B	MY60110172	Sep. 01, 2022	Aug. 31, 2023
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 01, 2022	Aug. 31, 2023
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 01, 2022	Aug. 31, 2023
TA TOWER CENSOR	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 01, 2022	Aug. 31, 2023
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 01, 2022	Aug. 31, 2023
RF Control Unit	Tonsced	JS0806-2	21F8060439	Sep. 01, 2022	Aug. 31, 2023





Page: 11 of 40

5. Conducted Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.207

5.1.2 Test Limit

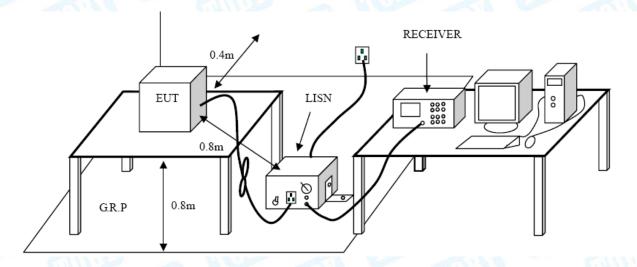
Conducted Emission Test Limit

Eroguanav	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.

5.2 Test Setup







Page: 12 of 40

5.3 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 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.

5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

Not applicable.





Page: 13 of 40

6. RF Output Power Test

6.1 Test Standard and Limit

6.1.1 Test Standard:

FCC Part 15.236(d)(2)

6.1.2 Test Limit

§15.236 Operation of wireless microphones in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-698 MHz.

- (d) The maximum radiated power shall not exceed the following values:
- (2) In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.

Procedure: KDB 971168 D01 Average Power Measurements section 5.2.1

Power Limit 50mW= 17dBm

6.2 Test Setup



6.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above.

- (2) Set the RBW≥Bandwidth
- (3) Set VBW≥3*RBW
- (4) Set Span≥3*RBW
- (5) Sweep time=auto
- (6) Measurement points ≥ 2 span / RBW
- (7) Detector=Average
- (8) Trace mode= max hold.

Allow trace to fully stabilize, and then use peak marker function to determine the Average amplitude level.

(9) Radiated RF power= Conduction measurement Level + Ant. Gain





Page: 14 of 40

6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Condition

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

6.6 Test Data

Please refer to the Attachment A.





Page: 15 of 40

7. Bandwidth Test

7.1 Test Standard and Requirement

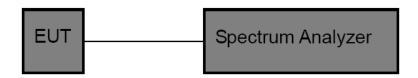
7.1.1 Test Standard FCC Part 15.236(f)(2)

71.2 Test Limit

One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz.

7.1.3 Requirement: ANSI C63.26 sec. 5.4.3

7.2 Test Setup



7.2 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=30 kHz, VBW=100kHz.

(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.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Condition

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

7.6 Test Data

Please refer to the Attachment B.





Page: 16 of 40

8. Emission Mask Test

8.1 Test Standard

(g) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement. Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

8.2 Test Limit

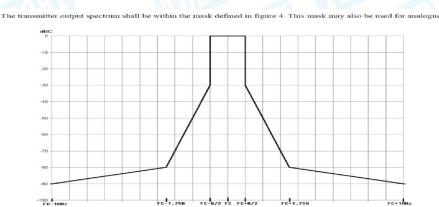
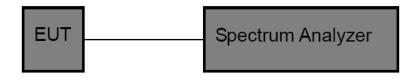


Figure 4: Spectrum mask for digital systems below 1 GHz

8.3 Test Setup



8.4 Test Procedure

Measure the "Maximum Relative Level (dBc) at Specified Carrier Offsets" with the following spectrum analyser setup:

- Centre Frequency = fc
- Span ≥ 5 × B
- Detector = RMS
- Trace Mode = Peak Hold
- RBW&VBW = 1 kHz
- Sweep time ≥ 2 s





Page: 17 of 40

8.5 Deviation From Test Standard

No deviation

8.6 Test Data

Please refer to the Attachment C.





Page: 18 of 40

9. Radiated Spurious Emission Test

9.1 Test Standard and Limit

9.1.1 Test Standard: FCC Part 15.236(g)

Requirement: ETSI EN 300 422-1 V1.4.2

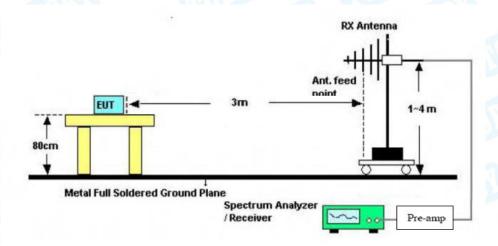
(g) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08), *Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement.* Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

9.1.2 Limits

State	Frequency					
	l .	Other Frequencies below 1 000 MHz	Frequencies above 1 000 MHz			
Operation	4 nW	250 nW	1 μW			
Standby	2 nW	2 nW	20 nW			

9.2 Test Setup

A. Radiated Emission Test Set-Up Frequency Below 1 GHz.

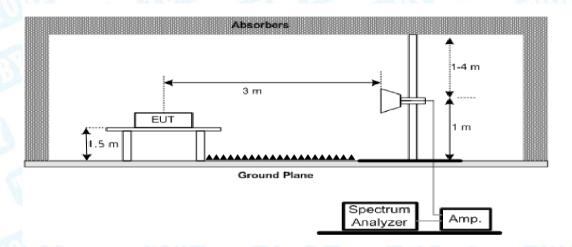






Page: 19 of 40

B. Radiated Emission Test Set-Up Frequency Above1 GHz.



9.3 Test Procedure

- 1. The EUT was placed on the top of the turntable in chamber.
- 2. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. This measurement shall be repeated with the transmitter in standby mode where applicable.
- 4. For spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable.
- 5. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
- 6. Replace the EUT by standard antenna and feed the RF port by signal generator.
- 7. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
- 8. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
- 9. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
- 10. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.

9.4 Deviation From Test Standard

No deviation

9.5 Test Data

Please refer to the Attachment C.





Page: 20 of 40

10. Frequency stability

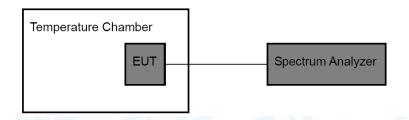
10.1 Test Standard and Limit

10.1.1 Test Standard: FCC 15.236(f)(3)

10.1.2 Test Limit

The frequency tolerance of the carrier signal shall be maintained within ±0.005% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

10.2 Test Setup



10.3 Test Procedure

The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 °C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worst case number used in the table below. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -20 °C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst-case number was again used in the table below. This procedure was repeated in 10-degree increments up to + 50 °C.

10.4 Deviation From Test Standard

No deviation

10.5 Test Data

Please refer to the Attachment D.





Report No.: TBR-C-202209-0054-2 Page: 21 of 40

Attachment A--Power Output Test Data

Frequency (MHz)	Conduction measurement Level (dBm)	Ant. Gain(dBi)	Radiated RF power(dBm)	Limit(dBm)	Margin (dB
565	0.609	1.72	2.329	50mw(17dBm)	-14.671
584	0.083	1.72	1.803	50mw(17dBm)	-15.197
604	0.189	1.72	1.909	50mw(17dBm)	-15.091
	10 dBidiv Ref 10.00 dB	m	Mkr1 604.012 0.609	dBm	
3 10	20 0 20 0 20 0 20 0 20 0 20 0 20 0 20	#VBW 1.0 M	Span 3.00 Sweep 1.000 ms (100	O MHz 31 pts)	ODI TODA
	Corpilla Seatoum Anima Seatoum Seatour Seatoum	PNO: Fast Trig: F IFGain:Low Attent		2 3 4 5 6 WWW.WNNNN	
	Center 565,000 MHz #Res BW 1.0 MHz Mid Language Spectrum Annales - Joseph Vidoo BW 1.0 MHz	#VBW 1.0 M SNS PNO Feet FGdHCG Trigger FGGHCG Trig	STATUS	6 •ו	TO THE
	10 dBldiv Ref 10.00 dB		Mkr1 584.063 0.189	MHz dBm	

Note: Radiated RF power= Conduction measurement Level + Ant. Gain



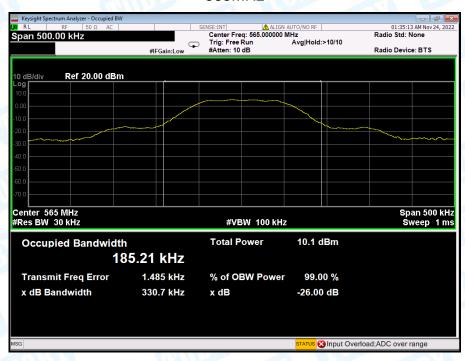


Page: 22 of 40

Attachment B--Bandwidth Test Data

Channel Frequency (MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)
565	185.21	330.7
584	155.61	197.5
604	154.86	203.1

565MHz







Page: 23 of 40

584MHz



604MHz



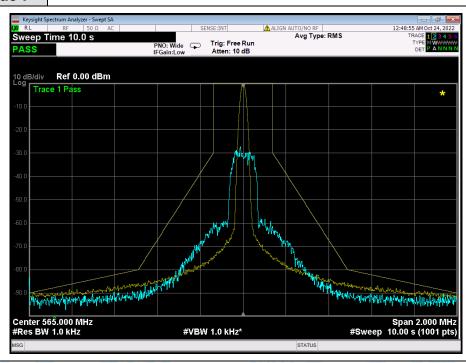




Page: 24 of 40

Attachment C--Emission Mask Test Data

Temperature:	26°C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Voltage :	DC 3V (Normal)
Result:	PASS		
Test Mode :	TX 565MHz		

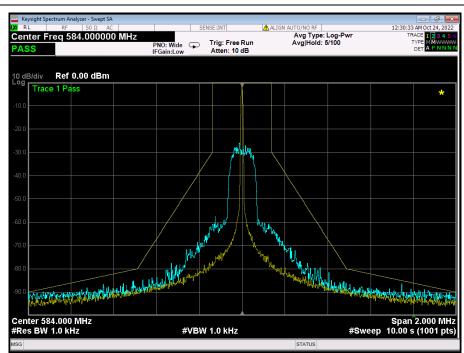




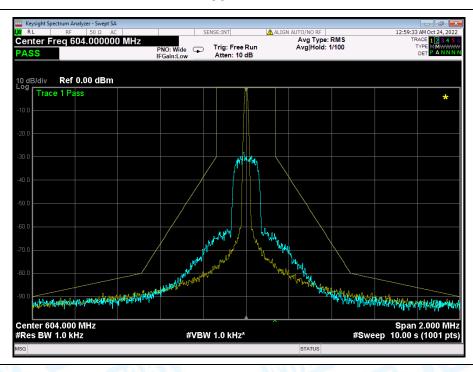


Page: 25 of 40

584MHz



604MHz



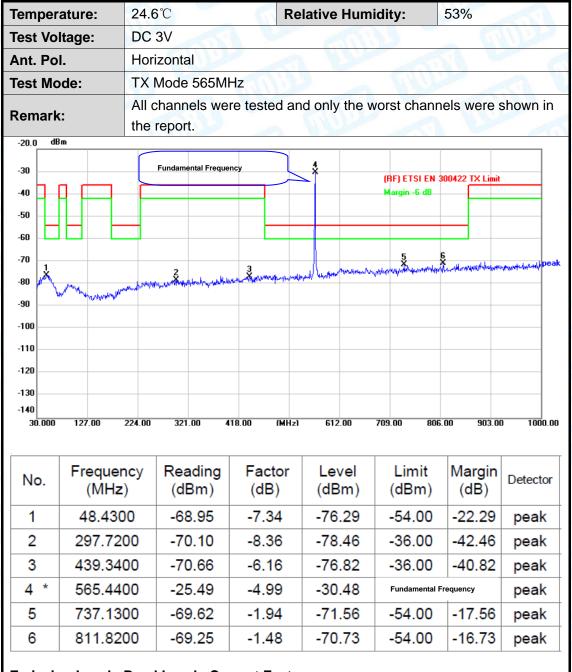




Page: 26 of 40

Attachment D--Radiated Spurious Emission Test Date

Below 1 GHz



Emission Level= Read Level+ Correct Factor





Report No.: TBR-C-202209-0054-2 Page: 27 of 40

empera	itui e.	24.6	C	1.00	Rela	tive Hu	midity:	53%	6	A British
est Vol	tage:	DC 3	V			T P			13	
nt. Pol		Vertic	cal		M.		a Y	N.		501
est Mo	de:	TX N	lode 565MI	Hz						
emark:			nannels we eport.	re testec	d and	only the	worst cha	nnels	were s	shown in
-20.0 dl	Bm		'							
-30			Fundamental Freq	quency		4 *	4051556			
-40							(RF) ETSI Margin -6	EN 300422 dB	2 TX Limit	
-50						A				
-60									1	
-70			2		3 X	1				6 X Valuality viley De
-80 X			Washington St.	المهداد المؤلفة المهالية	Harmles All	ys Lauthantract	und die Alexander und der Alexander	haldesperimente	and photographic	ARTHHUM AND
ייץ	and the state of	herberral restriction	Mark a service							
-90	·									
-90 -100										
-100										
-100										
-100 -110 -120										
-100										
-100 -110 -120 -130	127.00	224.00	321.00	418.00	(MHz)	612.00	709.00	806.00	903.00	0 1000.
-100	Freque (MH	ency	321.00 Reading (dBm)	418.00 Fact (dB)	or	Level (dBm)	Limi	t M	903.00 argin dB)	Detecto
-100 -110 -120 -130 -140 30.000	Freque	ency z)	Reading	Fact	or)	Level	Limi (dBn	t M	argin	
-100 -110 -120 -130 -140 30.000	Freque	ency z)	Reading (dBm)	Fact (dB)	or) 6	Level (dBm)	Limi (dBn	t M n) (argin	Detecto
-100 -110 -120 -130 -140 30.000	Freque (MH 50.37	ency (z) 700 800	Reading (dBm) -67.18	Fact (dB)	or) 6	Level (dBm)	Limi (dBm -54.0	t M n) (10 -2	argin (dB) 21.84	Detecto peak
-100 -110 -120 -130 -140 30.000 No.	Freque (MH 50.37 344.2	ency (z) 700 800 699	Reading (dBm) -67.18 -64.93	Fact (dB) -8.60	or) 6 2	Level (dBm) -75.84	Limi (dBm -54.0 -36.0 -54.0	t M n) (10 -2	argin dB) 21.84 36.95 4.68	Detecto peak peak
-100 -110 -120 -130 -140 30.000	Freque (MH 50.37 344.2 515.9	ency (z) 700 800 699	Reading (dBm) -67.18 -64.93 -63.50	Fact (dB) -8.60	or) 6 2 8	Level (dBm) -75.84 -72.95 -68.68	Limi (dBm -54.0 -36.0 -54.0	t M. (10 -2 10 -3 10 -1 11 11 11 11 11 11 11 11 11 11 11 11	argin dB) 21.84 36.95 4.68	Detector peak peak peak

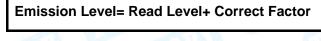
Emission Level= Read Level+ Correct Factor





Report No.: TBR-C-202209-0054-2 Page: 28 of 40

		1 10 1								
Temperat	ture:	24.6	$^{\circ}$		Rela	ative	Hum	idity:	53%	
Test Volta	age:	DC 3	3V		45		183		TAB	
Ant. Pol.		Horiz	zontal		187	100		3 W		
Test Mod	e:	TX N	Mode 584M	Hz		C.		13		
Remark:			hannels we eport.	re teste	d and	only	the v	vorst chani	nels were	shown ir
-20.0 dBm										
-30			Fundamental Fre	quency	$\overline{\Box}$	4				
h a			Tundamentari	queriey	_^	Ť			300422 TX Limit	
-40								Margin -6 dB		
-50										
-60		-								
-70			3 Supplies Assessed		-	1	5 1	han garaghan guillanga a	6 Ayuntingangangan	Application Dec
-80	dania of all applications to place	41 ASWINSHIP	Marthan Contact King Samuel	eproportional transfere	het het galgeria	Ample and	Ψ .	1		
-90	apelitable demand									
-100										
-110										
-120										
-130										
-140										
30.000	127.00 2	24.00	321.00 4	18.00 (MHz)	612.0)0	709.00 806	5.00 903.00	1000.0
No.	Frequer (MHz	•	Reading (dBm)	Fact (dB		Lev (dB)		Limit (dBm)	Margin (dB)	Detecto
1	90.140	0	-69.51	-10.6	6	-80.	17	-54.00	-26.17	peak
2	227.880	00	-69.79	-9.7	2	-79.	51	-54.00	-25.51	peak
3	350.100	00	-68.33	-8.0	6	-76.	39	-36.00	-40.39	
4 *	E02 07/					- <i>i</i> 0.			40.00	peak
5	583.870	00	-27.32	-4.3	8	-31.		Fundamental		•
5	670.200		-27.32 -69.13	-4.3 -2.7			70			peak
6		00			5	-31.	70 88	Fundamental	Frequency	peak peak







Report No.: TBR-C-202209-0054-2 Page: 29 of 40

emperature:	24.6℃	Relative Humidity:	53%
est Voltage:	DC 3V	AT U	
nt. Pol.	Vertical		
est Mode:	TX Mode 584MHz		THUL
lemark:	All channels were test	sted and only the worst cha	nnels were shown in
20.0 dBm			
30 40 50 60	Fundamental Frequency	Margin⊸6.d	EN 300422 TX Limit
70	Marine San Company Com	Type Manhana Landon Company Co	hannester, definisher and an independent of the section and stands
90			
100			
110			
120			

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	109.5400	-69.16	-10.36	-79.52	-54.00	-25.52	peak
2	324.8800	-66.93	-9.07	-76.00	-36.00	-40.00	peak
3	470.3800	-66.29	-6.26	-72.55	-54.00	-18.55	peak
4 *	583.8700	-25.39	-3.88	-29.27	Fundamental Fro	equency	peak
5	682.8100	-63.40	-2.69	-66.09	-54.00	-12.09	peak
6	756.5300	-67.53	-1.30	-68.83	-54.00	-14.83	peak

Emission Level= Read Level+ Correct Factor





Page: 30 of 40

Temperature:	24.6℃	Relative	Humidity:	53%	
Гest Voltage:	DC 3V		Care Care	MAD	
Ant. Pol.	Horizontal	CHILIT			1
Test Mode:	TX Mode 604MHz		THE STATE OF	- UA	VI S
) a ma a ml s	All channels were	tested and only	the worst char	nnels were s	hown in
Remark:	the report.		DIT.		
-20,0 dBm		<u> </u>			
-30			(RF) ETSI EN	N 300422 TX Limit	
-40	Fundamental Fred	iuenc	Margin -6 dB		
-50					
-60			5		
			a 8		
1 1	3	3	Same of the same o	knowledge party of the second	pea
-80 million and the state of th	Commence of the contract of th	3 Morroway pakanowan	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	kandaga asada errona anda aktawa kanda	pea «بريادر» pea
-80 -90 -90	- And the second	3 contraction produces where the	in a state of the	freed agreement of the delivery	pea
-80 -90 -100	- And the region part day of many before the control of the contro	3 control of the second of the	**************************************	freed generalization of the television of	pea - Linkernight
-90 -100	Kanan salah makan pertekan permanan karipar	3 million of the second of the	* \$ 	free of annual state of the sta	_{, мүү} , , , , , , , , , , , , , , , , , , ,
-90 -100 -120	Emperation of the second of th	3 million of the state of the s	* \$ 	kranikaran da kranikaran d	pea
-90 -100 -110	Emergence of the standard and and and and and and and and and an	3 million of the second of the	S. S	tradegas sandistrate, et de de sande and	реа
-80 -90 -100 -110 -120 -130 -140	224.00 321.00 418.0		anaman na pantaka militar kantar katar Indonesia ya Indonesia	06.00 903.00	pea 1000.00
-80 -90 -100 -110 -120 -130 -140	224.00 321.00 418.0 ncy Reading	0 (MH₂) 612. Factor Le	anaman na pantaka militar kantar katar Indonesia ya Indonesia	06.00 903.00 Margin	

-73.87

-76.35

-28.94

-67.06

-69.17

-36.00

-36.00

-54.00

-54.00

Fundamental Frequency

-37.87

-40.35

-13.06

-15.17

peak

peak

peak

peak

peak

-8.33

-5.98

-3.05

-2.79

-1.45

Emission Level= Read Level+ Correct Factor

353.9800

450.9800

604.2400

702.2100

775.9300

2

3

4 *

5

-65.54

-70.37

-25.89

-64.27

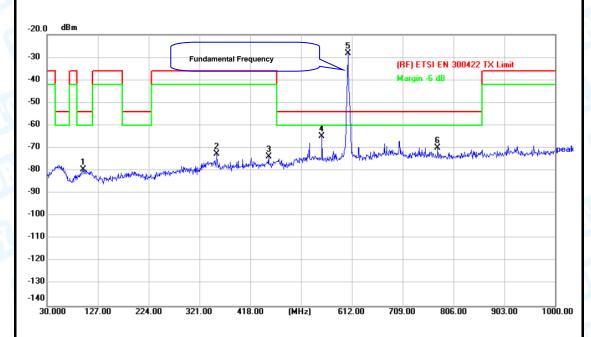
-67.72





Page: 31 of 40

24.6℃	Relative Humidity:	53%				
DC 3V						
Vertical	The same of the sa					
TX Mode 604MHz	mill 1919	TIVE				
All channels were tested and only the worst channels were shown in the report.						
	DC 3V Vertical TX Mode 604MHz All channels were tester	DC 3V Vertical TX Mode 604MHz All channels were tested and only the worst cha				



No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	98.8700	-69.07	-10.42	-79.49	-54.00	-25.49	peak
2	353.9800	-64.61	-7.93	-72.54	-36.00	-36.54	peak
3	452.9200	-67.18	-6.79	-73.97	-36.00	-37.97	peak
4	554.7700	-60.31	-4.68	-64.99	Fundamental Fre	equency	peak
5 *	604.2400	-25.25	-2.99	-28.24	-54.00	25.76	peak
6	775.9300	-68.39	-1.51	-69.90	-54.00	-15.90	peak

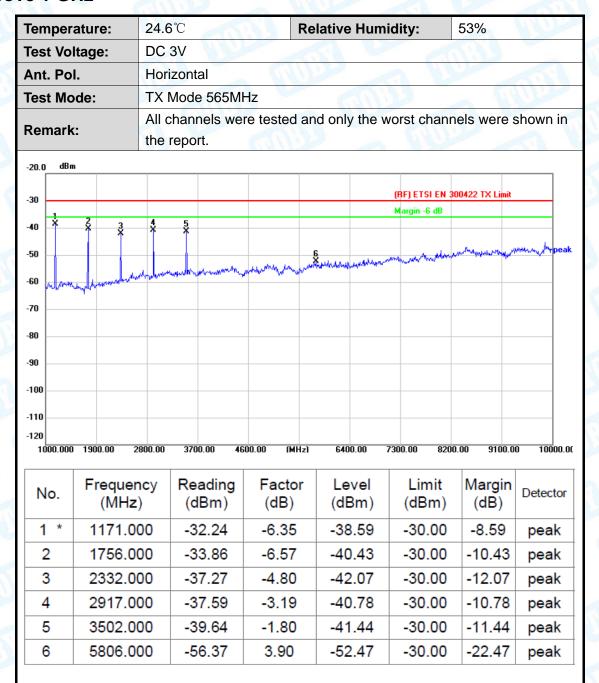
Emission Level= Read Level+ Correct Factor





Page: 32 of 40

Above 1 GHz



Emission Level= Read Level+ Correct Factor





Report No.: TBR-C-202209-0054-2 Page: 33 of 40

Tempera	ature:	24.6	°C		199	Rel	ative H	lumic	dity:	53	3%	BILL	عالي
Test Vol	tage:	DC	3V					6.30		M	A.B.		
Ant. Pol		Vert	ical			M.			A W				
Test Mo	de:	TX I	X Mode 565MHz										
Remark	•		hanne report		re teste	d and	d only t	he wo	orst cha	nnel	s were	show	n in
-20.0 dB	m		·										1
-30								O	RF) ETSI EN	30042	2 TX Limit		
1	2 3 X X							, i	largin -6 dB				
-40													
-50		*	5 X					,	عيس به دااور الإرسا ^د	the worder.	down the second	permental property and the	peak
-60	Walter House	mynter	wholphy	perdition as a significant	Applich Charleston Chris	Manyoraray	March March March		ľ				
-70	And Oltran												
-80													
-90													
-100													-
-110													
-120													
1000.00	0 1900.00	2800.00	3700	.00 4	600.00 (MHz)	6400.00	730	00.00 82	200.00	9100.0	0 100	500.OC
No.	Freque (MHz	•		ding Bm)	Fact (dB		Leve (dBn		Limi (dBm		Margii (dB)	n _{Det}	ecto
1 *	1171.0	000	-32	.02	-6.1	5	-38.1	17	-30.0	0	-8.17	ре	eak
2	1756.0	000	-32	.30	-6.3	7	-38.6	37	-30.0	0	-8.67	ре	eak
3	2332.0	000	-34	.02	-4.7	2	-38.7	74	-30.0	0	-8.74	ре	eak
4	2917.0	000	-45	.49	-2.9	2	-48.4	11	-30.0	0	-18.41	1 ре	eak
5	3502.0	000	-48	.13	-1.7	1	-49.8	34	-30.0	0	-19.84	1 ре	eak
6	7111.0	000	-57	.55	7.5	8	-49.9	7	-30.0	0	-19.97	7 ne	eak





Report No.: TBR-C-202209-0054-2 Page: 34 of 40

Temper	ature:	24.6	8℃	13.8	Relativ	e Hun	nidity:	53%		
Test Vo	Itage:	DC	3V			N.				
Ant. Po	l.	Hori	zontal		Mr. Bea		aW		100	
Test Mo	de:	TXI	Mode 584N	1Hz						
Remark	:	- 0	channels we report.	ere tested	and on	ly the	worst chan	nels were	shown in	
-20.0 dB	m									
-30							(RF) ETSI EN	300422 TX Limit		
1	2 2	4	_				Margin -6 dB			
-40	2 3 X	*	\$ *							
-50				6 La marial Cardinal Constitution of the Const	- Lumbran	WILLIAM MATERIAL	million and the second of the second	Karachine Janus Harach	why he	
-60	And the second second second second second	yandar	way now being how my wife grant to	A Shall gradustand by place	white the same of	. thus as				
-70	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									
-80										
-90										
-100										
-110										
-120										
1000.00	0 1900.00	2800.00	3700.00	4600.00 (MHz) 6	400.00	7300.00 820	00.00 9100.0	00 10000.	
No.	Frequer (MHz)	- 1	Reading (dBm)	Facto (dB)		evel Bm)	Limit (dBm)	Margin (dB)	Detector	
1 *	1162.00	00	-31.33	-6.50	-3	7.83	-30.00	-7.83	peak	
2	1747.00	00	-35.05	-6.61	-4	1.66	-30.00	-11.66	peak	
3	2332.00	00	-36.93	-4.80) -4	1.73	-30.00	-11.73	peak	
4	2917.00	00	-37.73	-3.19	-4	0.92	-30.00	-10.92	peak	
5	3502.00	00	-40.20	-1.80) -4	2.00	-30.00	-12.00	peak	
	4924.00	20	-57.58	2.99		4.59	-30.00	-24.59	peak	





Report No.: TBR-C-202209-0054-2 Page: 35 of 40

emper	ature:	24.6	$^{\circ}$ C	Re	lative Hum	idity:	53%	RATE
est Vol	tage:	DC :	3V		A B	610		
nt. Po		Verti	cal	CHIL		aW		1
est Mo	de:	TX	/lode 584MI	Hz				
Remark	:		hannels we eport.	re tested an	d only the v	vorst chann	els were s	shown in
-20.0 dBı	n		•					
-30						(RF) ETSI EN 3	00422 TX Limit	
1						Margin -6 dB		
-40 X -50	2 3 X X	*	5 X	6		and the second second	marked appropriate the state of	r Mykwyd ypea
-60		Married Harrison	CLANTIAN MANY MANAGEMENT OF THE PARTY OF THE	many bearing	providence of any policy of the book	and the same of		
V -m	When you have been a seen							
70								
80								
90								
100								
-110								
-120								
1000.000	1900.00	2800.00	3700.00 40	600.00 (MHz)	6400.00	7300.00 8200	0.00 9100.0	0 10000.
No.	Freque (MH		Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1 *	1162.	000	-32.61	-6.43	-39.04	-30.00	-9.04	peak
2	1747.	000	-37.03	-6.33	-43.36	-30.00	-13.36	peak
3	2332.	000	-38.11	-4.72	-42.83	-30.00	-12.83	peak
4	2917.	000	-42.37	-2.92	-45.29	-30.00	-15.29	peak
5	3502.	000	-40.88	-1.71	-42.59	-30.00	-12.59	peak
			-56.81	2.60	-54.21	-30.00	-24.21	peak

Emission Level= Read Level+ Correct Factor





Report No.: TBR-C-202209-0054-2 Page: 36 of 40

5000		The Latest Name								
Temper	ature:	24.6	i°C	11.	Relat	tive Hu	midity:	53%	ó	RIVE
Test Vol	tage:	DC	3V			1 8				
Ant. Pol	l	Hori	zontal		Mil					1
Test Mo	de:	1 XT	Mode 604	MHz						
Remark		All c	hannels v	vere teste	d and	only the	worst ch	annels v	were s	shown in
Remark	•	the	report.				1 64	M. Carlot		
-20.0 dBn	n									
-30							(RF) ETSI	EN 300422	ΓX Limit	
1							Margin -6	dB		
-40 ×	2 X	3 4 *	5 X							
-50			-	6			استارس المالاس المالية	particular particular agricular agri	Maryan day programative	wydywy pea
-60		Juguidan daya landi	والمرابد والمحالفات في المحمل وروا	was to the second	Mary Market Company	nappy was	•			
-70	even All .									
-80										
-90										
-100										
-110										
-120										
1000.000	1900.00	2800.00	3700.00	4600.00	(MHz)	6400.00	7300.00	8200.00	9100.00	D 10000.0
No.	Frequ (MF	•	Reading (dBm)	_		Level (dBm)	Lim (dBr		argin dB)	Detector
1 *	1207.	.000	-32.47	-5.9	3	-38.40	-30.0	3- 00	3.40	peak
2	1810.	.000	-35.63	-6.3	6	-41.99	-30.0	00 -1	1.99	peak
3	2413.	.000	-39.30	-4.4	8	-43.78	-30.0	00 -1	3.78	peak
4	3016.	.000	-43.96	-2.3	0	-46.26	-30.0	00 -1	6.26	peak
	3628.	.000	-45.82	-0.2	0	-46.02	-30.0	00 -1	6.02	peak
5					6	-55.80	-30.0		5.80	peak





Report No.: TBR-C-202209-0054-2 Page: 37 of 40

Temper	aturo	24.6	°C		Pol	ative H	lumio	lity:	539	0/_	UNI	
-		DC 3		(4)160	VEIG	inve II	umic	iity.	33	70		
Test Vo									JAF.	Table 1		b.
Ant. Po		Verti			VES		4					
Test Mo	de:		/lode 604M	1770		671	110			MA		
Remark	(:		hannels we	ere teste	d and	only th	he wo	orst cha	nnels	were s	shown	in
		the r	eport.		1			11/10				
-20.0 dBı	m											
-30								(RF) ETSI E	N 30042	2 TX Limit		
1	2							Margin -6 dl	В			
-40	3	\$ *	6									
-50				<u> </u>	+		the street and the	«الورروب الإسرال	a Marin Mayor	Markey Land	يتلمر فلتقهيب أمتيا	pea
-60	Number of the Control	1. Sunda	an anniel markensplandern	Markeyany	per compensal	ugh-vidikal/Art	Married Control					
-70	ALL THE STATE OF T											
-70												
-80												
-90												
-100												
-110												
-120												
1000.000	1900.00	2800.00	3700.00 4	1600.00 (I	MHz)	6400.0	0 73	800.00	8200.00	9100.0	0 100	00.
No.	Freque (MH:	•	Reading (dBm)	Fact (dB		Leve (dBn		Limi (dBm	-	largin (dB)	Detec	toı
1 *	1207.0	000	-30.91	-5.3	5	-36.2	26	-30.0	0 -	-6.26	pea	k
2	1810.0	000	-31.20	-6.4	6	-37.6	36	-30.0	0	-7.66	pea	k
3	2413.0	000	-41.17	-4.4	1	-45.5	58	-30.0	0 -	15.58	pea	k
	I	200	-53.49	-3.3	1	-56.8	30	-30.0	0 -	26.80	pea	k
4	2665.0	500										
	2665.0 3016.0		-40.97	-1.9	7	-42.9	94	-30.0	0 -	12.94	pea	k





Page: 38 of 40

Attachment E--Frequency Stability Test Data

Pressure:	1010 hPa		Test Voltage :	DC 3V (Normal)
Test Mode :	TX 565MHz	(Modulation)	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
Remark:	All channels	were tested and o	nly the worst channels were shown	in the report.
Toot Condit	iono	Managuranaant	Toot Conditions	Managemana

Test Conditions		Measurement	Test (Measurement	
Test Temperature	Test Voltage	Frequency(MHz)	Test Voltage	Test Temperature	Frequency(MHz)
-20°C	565 85%			565.013	
-10°C	DC 3V	565	95%	- 20°C	565.012
0°C		565	100%		565.015
10°C		565	105%		565.015
20°C		565	110%		565.014
30°C	mn?	565	115%		565.015
40°C	1	565			
50°C		565		William)	
Max. Deviation Fre		0.015			
Max. Frequency E	0.003%				
Limits	000	±0.005%			
Result			ABO		PASS
Note: The freque	ncy tolerance	of the carrier sig	nal shall he m	aintained within +0	005% of the

Note: The frequency tolerance of the carrier signal shall be maintained within ±0.005% of the operating frequency.





Report No.: TBR-C-202209-0054-2 Page: 39 of 40

	(Modulation) were tested and o	ali the mark th		The same of the sa			
E-17 / 1 2 No	were tested and o	alv. 4la a v. aug.4 - la					
าร		nly the worst cr	nannels were shown	in the report.			
	Measurement	Test (Conditions	Measurement			
st Voltage	Frequency(MHz)	Test Voltage	Test Temperature	Frequency(MHz)			
DIN F	584	85%	Million	584.012			
	584	95%		584.011			
	584	100%	4022	584.012			
	584	105%	20°C	584.012			
DC 3V	584	110%		584.015			
	584	115%		584.015			
400	584						
	584	A W					
ency			1 VIV	0.015			
Max. Frequency Error							
Limits							
		COUNTY OF	and a	PASS			
	tolerance	584 584 584 584 584 584 584 584 584 584	DC 3V	DC 3V			





Report No.: TBR-C-202209-0054-2 Page: 40 of 40

Pressure:	1010 hPa		Test Voltage :	DC 3V (Normal)			
Test Mode :	TX 604MHz	(Modulation)					
Remark:	All channels	were tested and o	nly the worst ch	nannels were showr	in the report.		
Test Cond	litions	Measurement	Test (Conditions	Measurement		
Test Temperature	Test Voltage	Frequency(MHz)	Test Voltage	Test Temperature	Frequency(MHz)		
-20°C	OBB C	604	85%	D. C. C.	604.012		
-10°C		604	95%		604.013		
0°C		604	100%	- 20°C	604.012		
10°C		604	105%		604.017		
20°C	DC 3V	604	110%		604.013		
30°C	13.3	604	115%		604.014		
40°C	. 60%	604					
50°C	3	604	CA WILL				
Max. Deviation Fre	0.017						
Max. Frequency E	0.003%						
Limits	±0.005%						
Result	The same of	100	MARY		PASS		

----END OF REPORT----

