

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



Applicant:	Axon Enterprise, Inc. 17800 N 85th St, Scottsdale, AZ 85255, United States
Product Name:	Fleet 3 Charging Base
Brand Name:	Axon
Model No.:	AX1034
Model Difference:	N/A
Report Number:	E2/2021/90025
FCC ID	X4GS01358
IC:	8803A-S01358
Issue Date:	Oct.27,2021
Date of Test:	Sep.14,2021~Oct.01,2021
Date of EUT Received:	Sep.14,2021

hy I Approved By

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

Australian/New Zealand Standard AS/NZS 4268:2017. Test report to determine compliance with AS/NZS 4268 requirements.

The test results of this report relate only to the tested sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History							
Report NumberRevisionDescriptionIssue DateRemark							
E2/2021/90025	Rev.00	Original.	Oct.27,2021	Viola Su			

Note:

- 1. Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
- 2. Measurement results in the original test report **E2/2021/90024** are leveraged in this test report.

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GENERAL INFORMATION 1

1.1 **Product description**

Product Name:	Fleet 3 Charging Base
Brand Name:	AXON
Model No.:	AX1034
Model Difference:	N/A
Hardware Version:	DVT
Software Version:	N/A
Firmware Version_Main chip:	v24.00
Firmware Version_TI RF chip:	17.14
EUT Series No.:	PJ219089011
Power Supply:	54Vdc from PoE port of Fleet 3 host (AX1033)

Radio Technology:	Wireless Microphone
Frequency Range (FCC):	902.4 – 927.6MHz
Frequency Range (AS/NZS 4268):	915 – 928MHz
Channel number:	64 channels
Modulation type:	2FSK
Transmit Power:	18.27 dBm (Peak)
Dwell Time:	<= 0.4s
Operating Mode:	Point-to-Point
Antenna Designation:	Dipole Antenna , Peak Gain: 2.14 dBi Peak Gain: 0.5 dBi

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1.2 **Test Methodology of Applied Standards** FCC Part 15, Subpart C §15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r02 RSS-247 issue 2 Feb. 2017 RSS-Gen, Issue 5 (Amendment 2, February 2021) ANSI C63.10:2013

AS/NZS 4268:2017, - Radio equipment and systems - Short range devices - Limits and methods of measurement.

1.3 **Test Facility**

Laboratory	Test Site Address	Test Site Name	FCC Designa- tion number	IC CAB identifier
		SAC 1		
		SAC 3		
		Conduction 1		
	No.134, Wu Kung Road, New Taipei	Conducted 1		
	Industrial Park, Wuku District, New	Conducted 2	TW0027	
	Taipei City, Taiwan.	Conducted 3		TW3702
		Conducted 4		
		Conducted 5	-	
		Conducted 6		
SGS Taiwan Ltd.		Conduction C	TW0028	
Central RF Lab.	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	SAC C		
(TAF code 3702)		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D]	
		Conducted E		
		Conducted F		
		Conducted G		

tion where measurements occurred in specific test site and address.

1.4 **Special Accessories**

There is no special accessory used while test was conducted.

1.5 **Equipment Modifications**

There was no modification incorporated into the EUT.

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SYSTEM TEST CONFIGURATION 2

2.1 **EUT Configuration**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 **EUT Exercise**

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 **Test Procedure**

2.3.1 **Conducted Emissions**

The EUT is a placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 **Radiated Emissions**

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*9m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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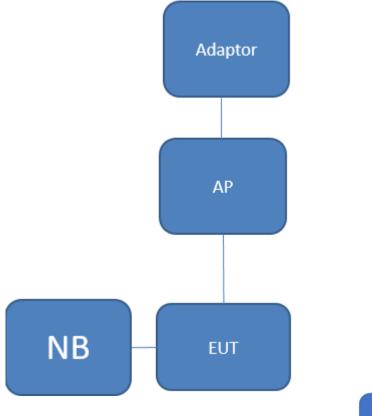
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2.5 **Configuration of Tested System**

Fig. 2-1 Conducted Emission





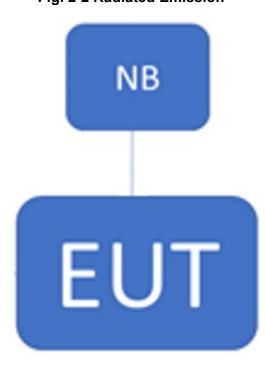


Fig. 2-3 Conduction Setup



ltem	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord	Version
1.	Test Software	audix	e3	20923 sgs Ver.9	N/A	N/A	N/A
2.	Notebook	Lenovo	L440	P0000367	N/A	N/A	N/A
3.	Test Software	SGS Taiwan	Radio Test Software	Ver.21	N/A	N/A	N/A
4.	Notebook	Lenovo	L480	P0002332	N/A	N/A	N/A
5.	Tere Term	N/A	N/A	N/A	N/A	N/A	4.84
6.	Adapter	FSP GROUP INC.	FSP120-AHAN3	N/A	N/A	N/A	N/A
7.	Test Software	audix	e3	Ver. 6.11- 20180419c	N/A	N/A	N/A

Table 2-1 Equipment Used in Tested System

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SUMMARY OF TEST RESULTS 3

AS/NZS 4268 Rule	Description	Result
Row 54	Frequency hopping transmit- ters	Compliant

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b)(2)	RSS-247 §5.4 b	Peak Output Power	Compliant
§15.247(a)(1)(i)	RSS-247 §5.1 b RSS-Gen §6.7	20dB & 99% Bandwidth	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10	Conducted & Radiated Band Edge and Spurious Emission	Compliant
§15.247(a)(1)(i)	RSS-247 §5.1 c	Frequency Separation Number of hopping frequency Time of Occupancy	Compliant
§15.203	N/A	Antenna Requirement	Compliant

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4 DESCRIPTION OF TEST MODES

4.1 Operated in 902.4 ~ 927.6MHz Band

64 Channels are provided

	СН	Freq.(MHz)	СН	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)
	0	902.4	19	910	38	917.6	57	925.2
	1	902.8	20	910.4	39	918	58	925.6
	2	903.2	21	910.8	40	918.4	59	926
	3	903.6	22	911.2	41	918.8	60	926.4
	4	904	23	911.6	42	919.2	61	926.8
	5	904.4	24	912	43	919.6	62	927.2
	6	904.8	25	912.4	44	920	63	927.6
	7	905.2	26	912.8	45	920.4		
Channel	8	905.6	27	913.2	46	920.8		
List	9	906	28	913.6	47	921.2		
	10	906.4	29	914	48	921.6		
	11	906.8	30	914.4	49	922		
	12	907.2	31	914.8	50	922.4		
	13	907.6	32	915.2	51	922.8		
	14	908	33	915.6	52	923.2		
	15	908.4	34	916	53	923.6		
	16	908.8	35	916.4	54	924		
	17	909.2	36	916.8	55	924.4		
	18	909.6	37	917.2	56	924.8		

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4.2 The Worst Test Modes and Channel Details

- 1 The EUT has been tested under operating condition.
- 2 Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
- 3 Investigation has been done on all the possible configurations for searching the worst case.

RADIATED EMISSION TEST (BELOW 1 GHz)							
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)				
902.4~927.6	902.4~927.6	902.4 \ 915.2 \ 927.6	0.2				
RAD	DIATED EMISSIO	N TEST (ABOVE 1 GHz)					
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)				
902.4~927.6	902.4~927.6	902.4 \ 915.2 \ 927.6	0.2				

CONDUCTED TEST							
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)				
902.4~927.6	902.4~927.6	902.4 \ 915.6 \ 927.6	0.2				

Peak ouput power						
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)			
902.4~927.6 902.4~927.6		902.4 \ 915.2 \ 927.6	0.2			

20dB Band width						
	MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)		
	902.4~927.6 902.4~927.6		902.4 \ 915.2 \ 927.6	0.2		

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Band Edge						
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)			
902.4~927.6	902.4~927.6	902.4 \ 927.6	0.2			

Frequency Separation					
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)		
902.4~927.6 902.4~927.6		902.4 \ 902.8 \ 903.2	0.2		

Number of hopping frequency					
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)		
902.4~927.6	902.4~927.6	902.4 ~ 927.6	0.2		

Dwell time					
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	DATA RATE (Mbps)		
902.4~927.6	902.4~927.6	915.2	0.2		

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
AC Power Line Conducted Emission	+/-	2.34	dB
Peak Output Power	+/-	1	dB
20dB Bandwidth & 99% Bandwidth	+/-	1.53	Hz
100 kHz Bandwidth Of Frequency Band Edges	+/-	1.69	dB
Frequency Separation	+/-	1.53	Hz
Number of hopping frequency	+/-	1.53	Hz
Time of Occupancy	+/-	1.53	Hz
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty					
	+/-	2.64	dB	9kHz~30MHz	
Polarization: Vertical	+/-	4.93	dB	30MHz - 1000MHz	
Polarization. Vertical	+/-	4.81	dB	1GHz - 18GHz	
	+/-	4.52	dB	18GHz - 40GHz	
	+/-	2.64	dB	9kHz~30MHz	
Polarization: Horizontal	+/-	4.45	dB	30MHz - 1000MHz	
	+/-	4.81	dB	1GHz - 18GHz	
	+/-	4.52	dB	18GHz - 40GHz	

Note:

- 1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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6 CONDUCTED EMISSION TEST

6.1 Standard Applicable

Frequency within 150 kHz to 30MHz shall not exceed the limit table as below.

	Limits				
Frequency range	dB(uV)				
MHz	Quasi-peak	Average			
0.15 to 0.50	66 to 56	56 to 46			
0.50 to 5	56	46			
5 to 30	60	50			

Note

1. The lower limit shall apply at the transition frequencies

2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

6.2 Measurement Equipment Used:

Radiated Emission Test Site: Conduction C							
EQUIPMENT TYPE	MFR	MODEL NUM- BER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
Test Software	audix	e3	Ver. 6.11-20180419c	N.C.R	N.C.R		
LISN	SCHWARZBECK Mess-El- ektronik	NSLK8127	973	03/25/2021	03/24/2022		
EMI Test Receiver	R&S	ESCI	101342	04/28/2021	04/27/2022		
Coaxial Cable	EC Lab	RF-HY-CAB-250	RF-HY-CAB-250-01	03/27/2021	03/26/2022		
Pulse Limiter	EC Lab	VTSD 9561F-N	485	03/27/2021	03/26/2022		
Adapter	FSP GROUP INC.	FSP120-AHAN3	N/A	N.C.R	N.C.R		

Note: N.C.R refers to Not Calibrated Required

6.3 EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

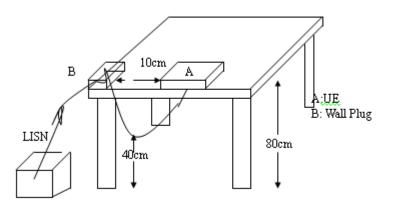
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(株子方分気切) し根できる末度力内気(人体の) 見 () 同時にはしいない度味(しい人) や 株 ち 永空本 な り き 出 行う () かう () かう () から ()

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6.4 Test SET-UP (Block Diagram of Configuration)



6.5 Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

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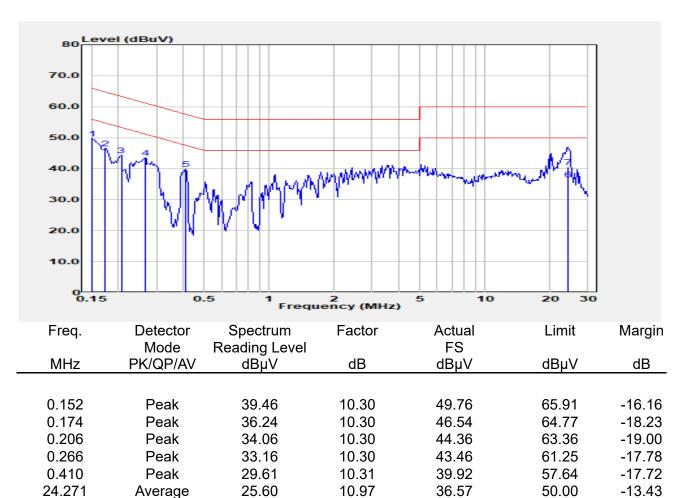
24.271

QP

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6.6 Measurement Result

Report Number	:E2/2021/90024	Test Site	:Conduction C
Test Mode	:Wireless Microphone LoRa	Test Date	:2021-09-17
Power	:120V/60Hz	Temp./Humi.	:22.1/62
Probe	:L1	Engineer	:Enzo Chang
Note:	: FSP120-AHAN3		



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29.60

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10.97

40.57

60.00

-19.43

Conduction C



·E2/2021/00024

Report Number

Report Number	:E2/2021/900	024	lest Site	:Condu	iction C	
Test Mode	:Wireless Mi	crophone LoRa	Test Date	:2021-0	09-17	
Power	:120V/60Hz		Temp./Hu	ımi. :22.1/6	2	
Probe	:N		Engineer	:Enzo (Chang	
Note:	: FSP120-AH	HAN3				
80 Level (dBuV)					
70.0						
60.0						
50.0	3 4					
40.0	MALLAN AL	ma manadad	alwahalan harara	When when and	Ma Na	
30.0		V V V ···				
20.0	V					
10.0						
0.15	0.5	1 Freque	2 ncy (MHz)	5 10	20 30	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode R PK/QP/AV	eading Level	dB	FS dBµV	dDu)/	dB
		dBµV	UD	идил	dBµV	uБ
0.152	Peak	39.47	10.31	49.78	65.91	-16.13
0.183	Peak	35.56	10.30	45.86	64.33	-18.46
0.266	Peak	33.30	10.31	43.61	61.25	-17.64
0.322	Peak	33.36	10.31	43.67	59.66	-15.99
0.507	Average	25.20	10.32	35.52	46.00	-10.48
0.507	QP	27.40	10.32	37.72	56.00	-18.28
24.015	Average	25.50	11.08	36.58	50.00	-13.42
24.015	QP	29.70	11.08	40.78	60.00	-19.22

Test Site

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Report Number Test Mode Power Probe Note:	:E2/2021/ :Charging :120V/60I :L1 : FSP120	Base LoRa Hz	Test Site Test Date Temp./Hum Engineer	:Conducti :2021-09- i. :22.3/61 :Enzo Cha	17	
80 Level	(dBuV)					
70.0						
60.0						
50.0	4					
40.0	m i		MMMMMM	Mind man a work	nnd fil	
30.0	- 6/	Mr. Maynew	y			
20.0	Ň					
10.0						
0.15	0	.5 1 Frequ	2 ency (MHz)	10	20 30	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode PK/QP/AV	Reading Level dBµV	dB	FS dBµV	dPuV	dB
		ασμν	UD	идил	dBµV	<u>UD</u>
0.152	Peak	40.03	10.30	50.33	65.91	-15.58
0.162	Peak	38.44	10.30	48.74	65.38	-16.64
0.204	Peak	34.91	10.30	45.21	63.45	-18.23
0.252	Peak	33.57	10.30	43.87	61.69	-17.82
0.410	Peak	30.40	10.31	40.71	57.64	-16.93
24.015 24.015	Average QP	25.80 29.80	10.97 10.97	36.77 40.77	50.00 60.00	-13.23 -19.23
24.010	QF	29.00	10.97	40.77	00.00	-19.23

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Report Number Test Mode Power Probe Note:	:E2/2021/ :Charging :120V/60F :N : FSP120-	Base LoRa Iz	Test Site Test Dat Temp./H Enginee	e :202 umi. :22.3	duction C 1-09-17 3/61 o Chang	
80 Level (dBuV)					
70.0						
60.0						
50.0	34					
40.0	the and	the of MANNAN	MMumuhu	Normalinghaning	when the the	
30.0		•¥ { { }	· · · · ·		···· 114	
20.0	Ť					
10.0						
0.15	O.	5 1	2	5 1	0 20 30	
0.15	0.	5 Frequ	ency (MHz)	5 1	0 20 30	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode PK/QP/AV	Reading Level dBµV	dB	FS dBµV	dBµV	dB
	·	•			•	
0.150	Peak	40.76	10.31	51.07	66.00	-14.93
0.185	Peak	36.25	10.30	46.56	64.24	-17.68
0.322	Peak	34.31	10.31	44.62	59.66	-15.04
0.343	Peak	34.39	10.31	44.70	59.13	-14.44
0.507 0.507	Average QP	25.40 27.30	10.32 10.32	35.72 37.62	46.00 56.00	-10.28 -18.38
24.271	Average	27.30	10.32	36.19	50.00	-10.30
24.271	QP	28.80	11.09	39.89	60.00	-20.11
, .	<u>~</u> .	20.00		00.00	00.00	_0

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PEAK OUTPUT POWER MEASUREMENT 7

7.1 Standard Applicable

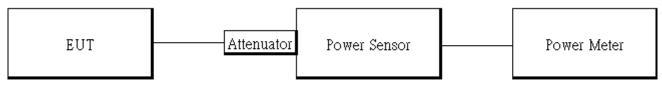
For frequency hopping systems operating in the 902-928 MHz band employing at least 50 hopping channels, conducted output power shall not exceed 1Watt and EIRP shall not exceed 4W. For systems employing less than 50 hopping channels, conducted output power shall not exceed 0.25Watt and EIRP shall not exceed 1W.

7.2 Measurement Equipment Used

	Conduc	ted Emission Test Si	te: Conducted B		
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/07/2021	07/06/2022
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R
Coaxial Cables	Woken	00100A1F2A196C	RF70	11/19/2020	11/18/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021
Notebook	Lenovo	L480	P0002332	N/A	N/A

Note: N.C.R refers to Not Calibrated Required

7.3 Test Set-up:



7.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C63.10.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Max Hold, Detector = Peak, RBW >=20dB bandwidth)
- 4. Record the max. reading.
- 5. Repeat above procedures until all default test channel is completed.

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7.5 Measurement Result

Charging Base (Peak):

СН	Freq. (MHz)	MHz) Power (dBm) 02.4 18.16		Limit (mW)
Low	902.4	18.16	65.464	1000
Mid	915.2	18.27	67.143	1000
High	927.6	18.21	66.222	1000

NOTE: cable loss as 10.6dB that offsets in the spectrum

Charging Base (Average):

СН	Freq. (MHz)	MHz) tolerance Power (dBm) 02.4 18.11		Limit (mW)
Low	902.4	18.11	64.714	1000
Mid	915.2	18.23	66.527	1000
High	927.6	18.15	65.313	1000

*Note: Max. Output include tune up tolerance Power measured by using average detector.

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8 20dB & 99% BANDWIDTH

8.1 Standard Applicable

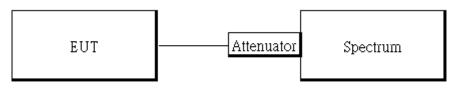
For frequency hopping systems operating in the 902 MHz-928 MHz : if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies.

8.2 Measurement Equipment Used

	Conduc	ted Emission Test Si	te: Conducted B		-
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/07/2021	07/06/2022
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R
Coaxial Cables	Woken	00100A1F2A196C	RF70	11/19/2020	11/18/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021
Notebook	Lenovo	L480	P0002332	N/A	N/A

Note: N.C.R refers to Not Calibrated Required

8.3 Test Set-up



8.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW=3 kHz, VBW = 9.1 kHz, Span= large enough to capture all products of the modulation process, Sweep=auto, Detector = Peak, and Max hold for 20dB Bandwidth test.
- 4. Mark the peak frequency and –20dB (upper and lower) frequency and Turn on the 99% bandwidth function, max reading.
- 5. Repeat above procedures until all test default channel is completed

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8.5 20dB Bandwidth

Charging Base

Frequency (MHz)	20dB BW (MHz)
902.4	0.2091
915.2	0.2095
927.6	0.2135

8.6 99% Bandwidth

Charging Base

Frequency (MHz)	99%Bandwidth (MHz)
902.4	0.20798
915.2	0.20985
927.6	0.21274

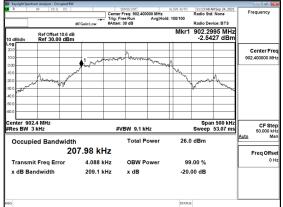
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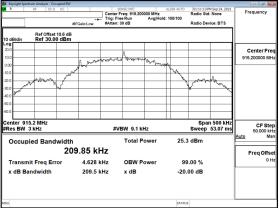


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OBW 20dB_Charging Base _902.4



OBW 20dB_Charging Base _915.2



OBW 20dB_Charging Base _927.6

	trum Analyzer - Occupied									e) X
CAL R	RF 50 Ω DC			ENSE:INT reg: 927.600	000 MHz	ALIGN AUTO	01:33:40 P	M Sep 24, 2021	Frequen	cy
		#IFGain:Low	#Atten:	e Run	Avg Hold	3: 100/100	Radio Dev	ice: BTS		
10 dB/div	Ref Offset 10.6 Ref 30.00 dE					Mkr1		95 MHz 81 dBm		
20.0				۵.					Cente 927.6000	
0.00		hann	mm	-hv	hora				521.00000	
-20.0	Anna	m ²				- N	por the second	Norm		
-30.0							ý			
-60.0			_							
Center 92 #Res BW			#V	BW 9.1 k	Hz			500 kHz 53.07 ms		Step 00 kH
Occup	ied Bandwid	dth		Total P	ower	24.5	dBm		Auto	Mar
	:	212.74	kHz						Freq	
Transm	it Freq Error	2.77	7 kHz	OBW P	ower	99	.00 %			0 H;
x dB Ba	andwidth	213.	5 kHz	x dB		-20.	00 dB			
мэа						STATUS				

IC OBW 99% Charging Base 902.4

Keysight Spectrum Analyzer - Oc										- 0
R RF 50 Ω	DC	c	enter Fre	SE:INT eq: 902.400		ILIGN AUTO	Radio Std	M Sep 24, 2021 None	Fn	quency
			rig: Free Atten: 30		Avg Hold:	100/100	Radio De			
	#IFG:	ain:Low 🛱	Atten: 30	dB						
Ref Offset						Mkr1		95 MHz 27 dBm		
0 dB/div Ref 30.0	0 dBm						-2.54	27 a.B.M		
20.0									6	enter Fre
10.0			Arth	how						400000 MI
0.00	•	1 mm			man	3				
10.0	~					m.				
20.0	N					2		M		
	WY					1	W.	min		
40.0								1		
50.0										
60.0										
60.0										
Center 902.4 MHz								1 500 kHz		CF Ste
#Res BW/3 kHz			#VB	W 9.1 ki	Hz		Sweep	53.07 ms		50.000 kł
Occupied Band	width			Total P	ower	26.0	dBm		Auto	M
occupica balla		oo							<u> </u>	
	207.	98 kHz							•	req Offs
Transmit Freg Err	ror	4.088 kHz		OBW P	ower	99	.00 %		I	01
x dB Bandwidth		209.1 kHz		x dB		-20	00 dB			
X ub bandwiddi		203.1 KH2		A GD		-20.	JU UD			
5G						STATUS				

IC OBW 99%_Charging Base _915.2



IC OBW 99%_Charging Base _927.6

Keysight Spect												- 0
R	RF 50	R DC			NSE:INT reg: 927,600	000 MHz	ALIGN AU		01:33:40 P Radio Std	M Sep 24, 2021 : None	Fr	equency
			Gain:Low	#Atten: 3		Avg Hold	1: 100/10		Radio Dev	dee: BTS		
		*1	Gain:Low	Protein. C			MAL			95 MHz		
10 dB/div	Ref Offse Ref 30.	t 10.6 dB 00 dBm								81 dBm		
20.0								_			6	Center Fre
0.00	-		hann	man	Marin	m	n a 1	+			927	.600000 MH
10.00		~	10000				Ka.					
20.0	Am	A MAR						٦.	ma	An-		
-30.0	·	100						\rightarrow	<i>r</i>	and the second		
-40.0												
-60.0	_							_				
Center 92	7.6 MHz								Spa	n 500 kHz	L-	CF Ste
#Res BW	3 kHz			#VE	3W 9.1 k	Hz			Sweep	53.07 ms		50.000 kH
Occup	ied Ban	dwidth			Total P	ower	2	4.5	dBm		Auto	Ма
		212	2.74 kl	Ηz								Freq Offse
Transm	nit Freq E	ror	2.777	kHz	OBW P	ower		99.	00 %		I	0 H
x dB Ba	andwidth		213.5	kHz	x dB		-	20.0	0 dB			
93							ST	ATUS				

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9 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

9.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) and RSS-Gen §8.10, must also comply with the radiated emission limits specified in §15.209(a) and RSS-Gen §8.9.

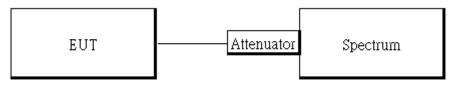
9.2 Measurement Equipment Used

Conducted Emission Test Site: Conducted B LAST CAL. **EQUIPMENT TYPE MFR/BRAND MODEL NUMBER** SERIAL NUMBER CAL DUE. Spectrum Analyzer **KEYSIGHT** N9010A MY54510568 07/07/2021 07/06/2022 **Test Software** SGS Taiwan Radio Test Software Ver.21 N.C.R N.C.R **Coaxial Cables** Woken 00100A1F2A196C **RF70** 11/19/2020 11/18/2021 **RF09** Attenuator Marvelous MVE2213-10 11/19/2020 11/18/2021 DC Block PASTERNACK PE8210 **RF151** 11/19/2020 11/18/2021 Notebook Lenovo L480 P0002332 N/A N/A

9.2.1 Conducted Emission at antenna port:

Note: N.C.R refers to Not Calibrated Required

9.3 Test SET-UP:



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9.4 **Measurement Procedure**

Conducted Band Edge:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C63.10:2013.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set center frequency of spectrum analyzer = operating frequency.
- 5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Sweep = auto
- 6. Mark Peak, 902MHz and 928MHz and record the max. level.
- 7. Repeat above procedures until all frequency measured were complete.

Conducted Spurious Emission:

- 1. To connect Antenna Port of EUT to Spectrum.
- 2. The testing follows ANSI C63.10:2013.
- 3. Set RBW = 100 kHz & VBW = 300 kHz, Detector = Peak, Sweep = Auto
- 4. Allow trace to fully stabilize.
- 5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- 6. Repeat above procedures until all default test channel measured were complete.

NOTE: cable loss as 10.30 dB that offsets in the spectrum

9.5 Measurement Result

See next page for test plots

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Band Edge Charging Base low

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	ght Spi			zer - Sv																	
R		Ri		50 \$	2 0	C					NSE:I			Туре	LIGN AUTO LOg-Pwr 100/100	11:12	TRACI	Sep 24, 1 2 3 1 MWW	456		Frequency
							PNC IFGa): Fast in:Low	, ~	#Atten: 3			Avgi	1010		1 0 0	DE	T P N N	NNN		Auto Tu
0 dB/	div			set 10 0.00											MK	r1 90 19		25 M 29 di			
0.0																		∮ 1			Center F
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		92.00						#1	(D)//	300 kHz					Sweep 2			5.00 N			CF St 2.500000 M
				2		x		#1	DAA	JUU KH2	_	FUN	TION		споммон	_	<u>,</u>	NVALUE		Au	
1 N 2 N	4 1	1		002	0.000		.425	MHz		19.129 d	Bm	TON		10/	C HON MOTH		ane no	IN WALCO	-î	F	
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9		-	F		_						-			-					=	L	
1		1		_	_	_	_		_								_	_		L	
G															STATU	s				-	

#### Band Edge_Charging Base _high

🐹 Keysight Spectrum Analyzer - S					
22 R RF 50	Ω DC PNO: Fast *	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 100/100	01:29:59 PM Sep 24, 2021 TRACE 1 2 3 4 5 6 TYPE M	Frequency
Ref Offset 1 10 dB/div Ref 30.00	IFGain:Low	#Atten: 30 dB	-	r2 928.000 MHz -10.287 dBm	Auto Tune
20.0 10.0 0.00				2.08 dBe	Center Fred 938.000000 MH
-10.0					Start Free 925.500000 MH
-40.0					Stop Fre 950.500000 MH
Center 938.00 MHz #Res BW 100 kHz	#VB	W 300 kHz	Sweep 2	Span 25.00 MHz .400 ms (1001 pts)	CF Step 2.500000 MH Auto Ma
I         N         I         f           2         N         1         f           3	927.575 MHz 928.000 MHz	17.723 dBm -10.287 dBm			Freq Offse 0 H
10 11 •		12	STATU	*	

#### Hopping Band_Charging Base_Edge_low

PNO: Fail - If difference         Aug Type: Log-PW         The Province         Proquency           Ref Offset 10.8 dB         MKT 390.17.4 MHZ         Auto Tune         Auto Tune         Auto Tune           00         -         -         -         -         -         -         -         -         -         Auto Tune         -         -         Auto Tune         -         -         Auto Tune         -         -         Auto Tune         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	Keysight Spectrum Analyzer - Swept SA				
Ref Offset 10.6 dB         Mikr3 901 74 MHz         Auto Tune           dB/dU/dv         ef 30.00 dBm         -17.832 dBm         Center Freq           00	R RF 50 Ω DC	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	09:01:48 AM Oct 01, 2021 TRACE 1 2 3 4 5 6	Frequency
grad         grad <thgrad< th="">         grad         grad         <thg< th=""><th></th><th></th><th>-</th><th>ьет Р NNNNN kr3 901.74 MHz</th><th>Auto Tune</th></thg<></thgrad<>			-	ьет Р NNNNN kr3 901.74 MHz	Auto Tune
30         30         2         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30         30 </td <td>20.0 10.0 0.00</td> <td></td> <td>MMMM</td> <td></td> <td>Center Freq 900.000000 MHz</td>	20.0 10.0 0.00		MMMM		Center Freq 900.000000 MHz
Stop Free         Stop 910.00 MHz         Stop 910.00 MHz         CF Step         Stop 910.00 MHz         Stop 910.00 MHz         Stop 910.00 MHz         CF Step         Stop 910.00 MHz         Stop 910.00 MHz         Stop 910.00 MHz         CF Step         Stop 910.00 MHz         Stop 910.00 MHz <t< td=""><td>-10.0</td><td></td><td>¢³2</td><td></td><td>Start Free 890.000000 MH2</td></t<>	-10.0		¢ ³ 2		Start Free 890.000000 MH2
Streep         1.933         ms (1001 pts)         2.00000 WH         2.000000 WH         2.0000 WH         2.0000 WH <td>-40.0 -50.0</td> <td></td> <td></td> <td></td> <td></td>	-40.0 -50.0				
VICUOD FILE         V         FAUNCION         FAUNCION MONTH         <	Start 890.00 MHz Res BW 100 kHz	#VBW 300 kHz	Sweep 1		2.000000 MH
	1 N 1 f 90 2 N 1 f 90	07.60 MHz 19.238 dBm 02.00 MHz -30.558 dBm 01.74 MHz -17.632 dBm	FUNCTION FUNCTION WOTH	FUNCTION VALUE	Freq Offse

#### Hopping Band Edge_Charging Base _high

📕 Keysight Spectrum Analyzer - Swept Si					
R RF 50 Ω D		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	02:02:46 PM Sep 24, 2021 TRACE 1 2 3 4 5 6	Frequency
Ref Offset 10.6 d		┘ Trig: Free Run #Atten: 30 dB	Avg Hold: 1007100	Kr3 928.16 MHz -15.394 dBm	Auto Tur
	MMMM			-0.45 dBn	Center Fr 930.000000 M
20.0		3			Start Fr 920.000000 M
80.0		hallallhow	1		Stop Fr 940.000000 M
tart 920.00 MHz Res BW 100 kHz	#VBW	300 kHz	Sweep 1	Stop 940.00 MHz .933 ms (1001 pts)	CF St 2.000000 N Auto M
1 N 1 f 2 N 1 f 3 N 1 f 4	920.80 MHz 928.00 MHz 928.16 MHz	19.554 dBm -10.507 dBm -15.394 dBm		E	Freq Offs 0
		ш	STATU	*	

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#### Spurious Emission_Charging Base_low

- @ ×								nalyzer - Swe		sight Spec	
	11:21:42 AM Sep 24, 2021 TRACE 1 2 3 4 5 6 TYPE M WWWW	ALIGN AUTO ype: Log-Pwr old: 100/100	F	e Ru	1	NO: Fast -+-	DC	50 Ω	RF		R
Auto Tune	2 3.050 91 GHz -43.954 dBm			30 dE	#Atten: 3	Sain:Low	iF0 6 dB	Offset 10. 30.00 c		3/div	10 d
Center Freq 5.015000000 GHz	-0.89 dBm								0		20.0 10.0
Start Freq 30.000000 MHz											-10.0 -20.0 -30.0
Stop Freq 10.00000000 GHz	*		14	~	ياديمين بتسعير	2	مستحملهم	مليرون مرتيم		فيتريها	-40.0 -50.0 -60.0
CF Step 997.000000 MHz Auto Man	Stop 10.000 GHz 52.9 ms (1001 pts)			2	300 kHz	#VBW			100	t 30 M 8 BW 1	#Re
Freq Offset 0 Hz	FUNCTION VALUE	FUNCTION WIDTH	FUNCTION	Bm Bm	19.112 d -43.954 d	6 MHz 1 GHz	× 907.3 3.050 9		1	N 1 N 1	1 2 3 4 5
											6 7 8 9 10
	,	STATUS								-	< C

#### Spurious Emission_ Charging Base_mid

	ectrum Analyzer - Sv									
() <mark>W</mark> R	RF 50 \$				SE:INT	Avg Typ Avg Hold	ALIGN AUTO	TRAC	4 Sep 24, 2021 2 1 2 3 4 5 6 PE MWWWW	Frequency
10 dB/div	Ref Offset 1 Ref 30.00	1F1	NO: Fast ↔ Gain:Low	#Atten: 30		Avginoid		2 3.768	75 GHz 96 dBm	Auto Tune
20.0 10.0									-1.20 dBm	Center Fred 5.015000000 GH:
-10.0										Start Free 30.000000 MH
-40.0 -50.0			were and a second	2		and produced	************		معداديه	Stop Free 10.000000000 GH
Start 30 M #Res BW	100 kHz	×	#VBV	V 300 kHz	E E I IN		Sweep 9	52.9 ms (	.000 GHz 1001 pts)	CF Ste 997.000000 MH <u>Auto</u> Ma
1 N 1 2 N 1 3 4 5 6	f f	917.3 3.768 7	3 MHz 5 GHz	18.802 dE -44.996 dE	Im				E	Freq Offse 0 H
6 7 8 9 10 11										
< [				н			STATUS		•	

#### Spurious Emission_ Charging Base_high

		Analyzer - Swe								- 6 <b>-</b>
R	R	F 50 Ω	DC	PNO: Fast		Run	ALIGN AUTO ce: Log-Pwr d: 100/100	TRAC	E 1 2 3 4 5 6	Frequency
10 dB/di		f Offset 10.		IFGain:Low	#Atten: 3			2 3.090	79 GHz 64 dBm	Auto Tun
20.0 10.0		1							2.47 dBp	Center Fre 5.015000000 GH
10.0 20.0 30.0										Start Fre 30.000000 MH
40.0 50.0		<del>مهدان م</del> ردمین	w	2	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	*******	 يزيندو مانسيو	1991)	rataana ka ki ka ,	Stop Fre 10.000000000 GH
	0 MHz W 100		×	#VE	3W 300 kHz		Sweep 9	52.9 ms (	000 GHz 1001 pts)	CF Ste 997.000000 Mi Auto Mi
1 N 2 N 3 4 5 6 7 8 9 9 10 11			92	7.30 MHz 0 79 GHz	17.534 dt -43.764 dt	3m	Wenew WIDTH	AUNCHO		Freq Offs 0 F
_								1	•	
SG							STATUS	1		

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### **10 SPURIOUS RADIATED EMISSION TEST**

### 10.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 limit as below.

And according to §15.33(a) (1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

#### Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)

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#### 10.2 Measurement Equipment Used:

	Radiated Emission Test Site: SAC C								
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
Broadband Antenna	TESEQ	CBL 6112D	35240	10/10/2021	10/09/2022				
Horn Antenna	Schwarzbeck	BBHA9170	184	12/11/2020	12/10/2021				
Horn Antenna	Schwarzbeck	BBHA9120D	1187	01/11/2021	01/10/2022				
Loop Antenna	ETS.LINDGREN	6502	143303	05/07/2021	05/06/2022				
EMI Test Receiver	R&S	ESU 40	100363	04/28/2021	04/27/2022				
Pre-Amplifier	EMC Instruments	EMC330	980096	11/19/2020	11/18/2021				
Pre-Amplifier	EMC Instruments	EMC0011830	980199	11/19/2020	11/18/2021				
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2020	10/26/2021				
Attenuator	Marvelous	WATT-218FS-10	RF20	11/19/2020	11/18/2021				
High Pass Filter	Woken	EWT-57-0209	RF171	11/19/2020	11/18/2021				
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	11/19/2020	11/18/2021				
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	11/19/2020	11/18/2021				
Test Software	audix	e3	20923 sgs Ver.9	N.C.R	N.C.R				
Notebook	Lenovo	L440	P0000367	N/A	N/A				

Note: N.C.R refers to Not Calibrated Required

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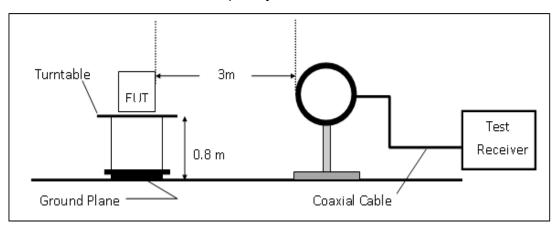
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(新子方方) 就の「) に根できる末庭月の減べ(株の食食)」「同時に株の正確にも知べくう本紙有本定本なりき面にす。「小子で) 切後表。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

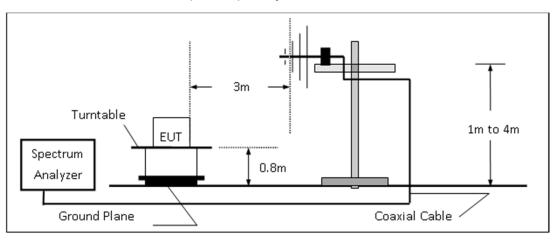


### 10.3 Test SET-UP:

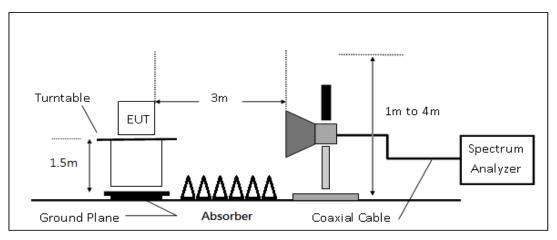
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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### 10.4 Measurement Procedure: Radiated Emission:

- 1. The testing follows ANSI C63.10:2013.
- 2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plan.
- 3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 5. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
- 6. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 8. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
- 11. Repeat above procedures until all default test channel measured were complete.

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#### 10.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

#### FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)			
	RA = Reading Amplitude	AG = Amplifier Gain			
	AF = Antenna Factor				

The limit of the emission level is expressed in dBuV/m, which converts  $20*\log(uV/m)$ Actual FS(dBµV/m) = SPA. Reading level(dBµV) + Factor(dB)

Factor(dB) = Antenna Factor(dB $\mu$ V/m) + Cable Loss(dB) – Pre Amplifier Gain(dB)

### 10.6 Test Results of Radiated Spurious Emissions form 9 KHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) & RSS-GEN §6.13.2 was not reported.

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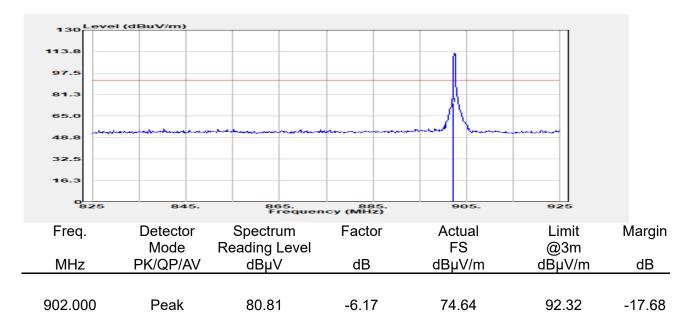
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#### 10.7 **Measurement Result:**

#### 10.7.1 **Radiated Bandedge Result**

Report Number	:E2/2021/90025	Test Site	:SAC C
Operation Mode	:Charging Base	Test Date	:2021-09-14
Test Frequency	:902.4 MHz	Temp./Humi.	:23.3/61
Test Mode	:BE CH LOW	Antenna Pol.	:Vertical
EUT Pol	:H Plane	Engineer	:Enzo Chang



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:SAC C



:E2/2021/90025

**Report Number** 

rioport ridinio or		00020				
Operation Mode	:Charging	Base	٦	lest Date	:2021-09-14	
Test Frequency	:902.4 MF	łz	٦	ſemp./Humi.	:23.3/61	
Test Mode	:BE CH LO	WC	A	Antenna Pol.	:Horizontal	
EUT Pol	:H Plane		E	Engineer	:Enzo Chang	
130 Level (d	lBuV/m)					
113.8						
97.5				<b>_</b>		
81.3						
65.0				<u>∦</u>		
48.8		harden and an an an and a factor	and the second s	mand here	an a	
32.5						
16.3						
0 825	845.	865. Frequen	885. cy (MHz)	905.	925	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode PK/QP/AV	Reading Level dBµV	dB	FS dBµV/m	@3m dBµV/m	dB
		dDµv	GD	ασμν/π	ασμν/π	<u>ub</u>
902.000	Peak	72.49	-6.17	66.32	81.16	-14.84

Test Site

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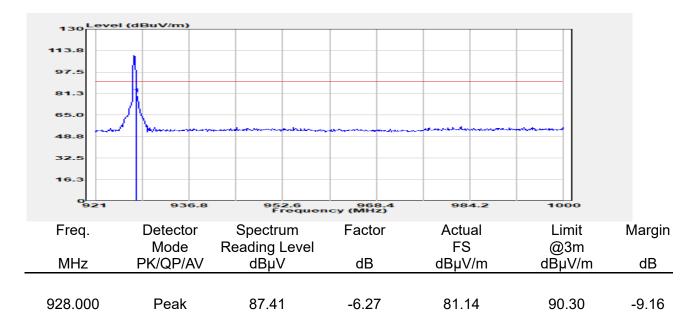
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:E2/2021/90025
:Charging Base
:927.6 MHz
:BE CH HIGH
:H Plane

Test Site	:SAC C
Test Date	:2021-09-14
Temp./Humi.	:23.3/61
Antenna Pol.	:Vertical
Engineer	:Enzo Chang



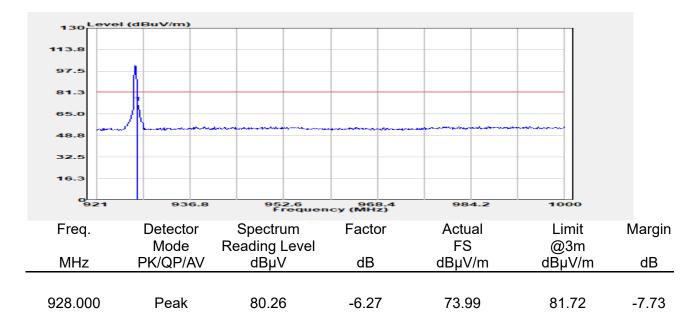
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Report Number	:E2/2021/90025
Operation Mode	:Charging Base
Test Frequency	:927.6 MHz
Test Mode	:BE CH HIGH
EUT Pol	:H Plane

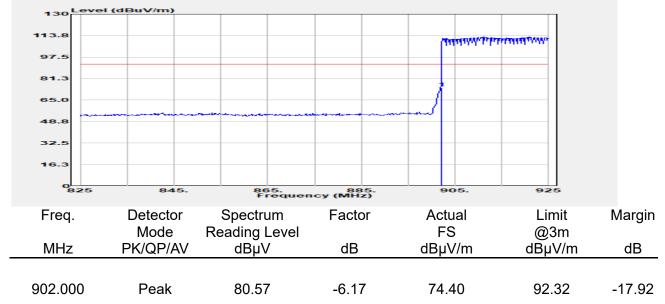
Test Site	:SAC C
Test Date	:2021-09-14
Temp./Humi.	:23.3/61
Antenna Pol.	:Horizontal
Engineer	:Enzo Chang



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Report Number	:E2/2021/90025	Test Site	:SAC C
Operation Mode	:Charging Base Hopping	Test Date	:2021-09-14
Test Frequency	:902.4 MHz	Temp./Humi.	:23.3/61
Test Mode	:BE CH LOW	Antenna Pol.	:Vertical
EUT Pol	:H Plane	Engineer	:Enzo Chang



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16.3

Report Number	:E2/2021/90025	Test Site	:SAC C
Operation Mode	:Charging Base Hopping	Test Date	:2021-09-14
Test Frequency	:902.4 MHz	Temp./Humi.	:23.3/61
Test Mode	:BE CH LOW	Antenna Pol.	:Horizontal
EUT Pol	:H Plane	Engineer	:Enzo Chang
130 Level (d	BuV/m)		
113.8			
97.5		1000000	AND
81.3			
65.0			
48.8			
32.5			

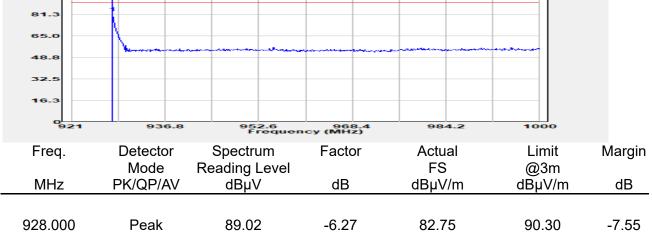
0						
825	845.	865. Freque	885. ency (MHz)	905.	925	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
902.000	Peak	71.28	-6.17	65.11	81.16	-16.05

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Report Number	:E2/2021/90025	Test Site	:SAC C
Operation Mode	:Charging Base Hopping	Test Date	:2021-09-14
Test Frequency	:927.6 MHz	Temp./Humi.	:23.3/61
Test Mode	:BE CH HIGH	Antenna Pol.	:Vertical
EUT Pol	:H Plane	Engineer	:Enzo Chang
130 Level (d	BuV/m)		
113.8			
97.5			



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Report Number	:E2/2021/	90025	Te	st Site	:SAC C	
Operation Mode	:Charging	Base Hopping	Te	st Date	:2021-09-14	
Test Frequency	:927.6 MH	Ιz	Те	mp./Humi.	:23.3/61	
Test Mode	:BE CH H	IGH	An	tenna Pol.	:Horizontal	
EUT Pol	:H Plane		En	gineer	:Enzo Chang	
130 Level (	dBuV/m)					
113.8						
97.5	1					
81.3	1					
65.0						
48.8	-		-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
32.5						
16.3						
921	936.8	952.6 Frequen	968.4 cy (MHz)	984.2	1000	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode PK/QP/AV	Reading Level dBµV	dB	FS dBµV/m	@3m dBµV/m	dB
		υυμν	чЪ	ubµv/m	ασμν/π	uD
928.000	Peak	81.14	-6.27	74.88	81.72	-6.84

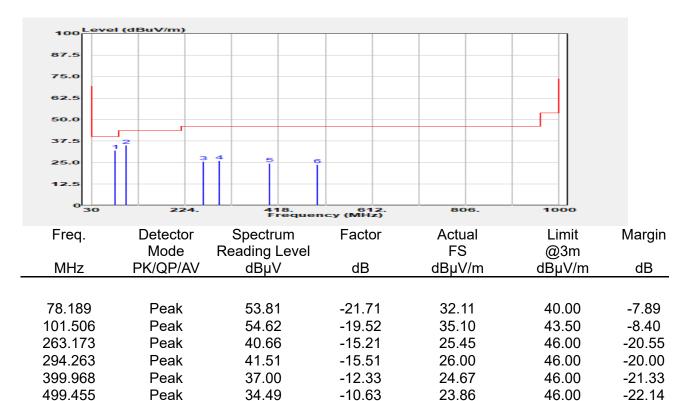
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#### 10.7.2 Radiated Spurious Emission form 30MHz to 1000MHz:

Report Number	:E2/2021/90025	Test Site	:SAC C
Operation Mode	:Charging Base	Test Date	:2021-09-15
Test Frequency	:915.2 MHz	Temp./Humi.	:23.4/60
Test Mode	:TX CH MID	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer	:Enzo Chang



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Report Number Operation Mode Test Frequency Test Mode EUT Pol	:E2/2021/9 :Charging I :915.2 MH: :TX CH MI :H Plane	Base z		Test Site Test Date Temp./Humi. Antenna Pol. Engineer	:SAC C :2021-09-15 :23.4/60 :HORIZONTAL :Enzo Chang	
100 Level (0 87.5 75.0 62.5 50.0 37.5 25.0 12.5 0 30	1BuV/m)	5 6 418. Frequen	612. (612.	806.		
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
N 41 I	Mode	Reading Level	٩D	FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
79.744 98.397 127.933 249.183 294.263 499.455	Peak Peak Peak Peak Peak Peak	49.39 47.97 43.65 43.86 43.32 35.87	-21.60 -20.21 -16.91 -16.22 -15.51 -10.63	27.79 27.76 26.74 27.64 27.81 25.24	40.00 43.50 43.50 46.00 46.00 46.00	-12.21 -15.74 -16.76 -18.36 -18.19 -20.76

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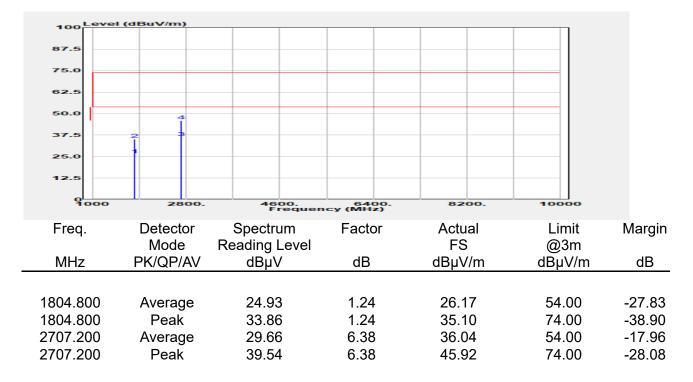
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### 10.7.1 Radiated Spurious Emission above 1 GHz:

Report Number	:E2/2021/90025	Test Site	:SAC C
Operation Mode	:Charging Base	Test Date	:2021-09-15
Test Frequency	:902.4 MHz	Temp./Humi.	:23.5/59
Test Mode	:TX CH LOW	Antenna Pol.	:Vertical
EUT Pol	:H Plane	Engineer	:Enzo Chang



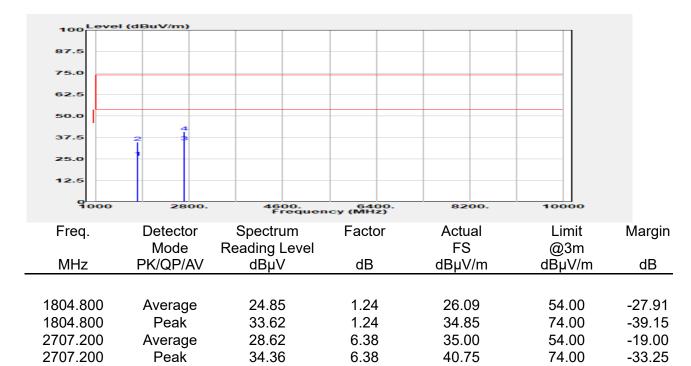
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Report Number	:E2/2021/90025
Operation Mode	:Charging Base
Test Frequency	:902.4 MHz
Test Mode	:TX CH LOW
EUT Pol	:H Plane

Test Site	:SAC C
Test Date	:2021-09-15
Temp./Humi.	:23.5/59
Antenna Pol.	:Horizontal
Engineer	:Enzo Chang



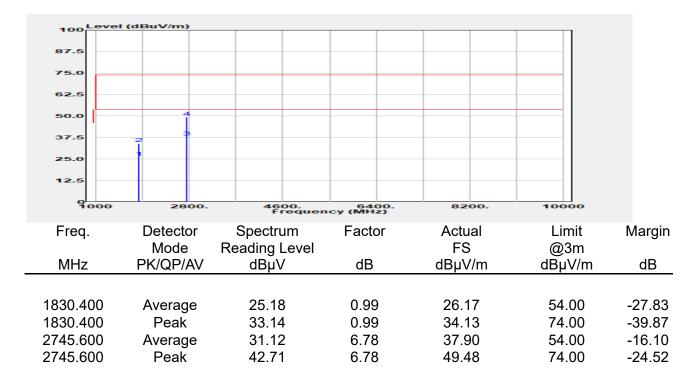
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Report Number	:E2/2021/90025
Operation Mode	:Charging Base
Test Frequency	:915.2 MHz
Test Mode	:TX CH MID
EUT Pol	:H Plane

Test Site	:SAC C
Test Date	:2021-09-15
Temp./Humi.	:23.5/59
Antenna Pol.	:Vertical
Engineer	:Enzo Chang



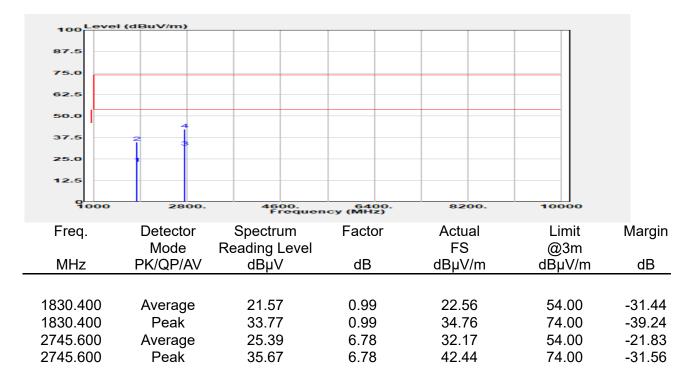
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Report Number	:E2/2021/90025
Operation Mode	:Charging Base
Test Frequency	:915.2 MHz
Test Mode	:TX CH MID
EUT Pol	:H Plane

:SAC C
:2021-09-15
:23.5/59
:Horizontal
:Enzo Chang



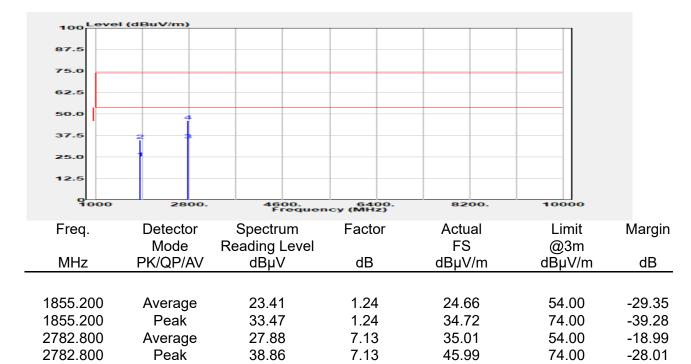
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Report Number	:E2/2021/90025
Operation Mode	:Charging Base
Test Frequency	:927.6 MHz
Test Mode	:TX CH HIGH
EUT Pol	:H Plane

Test Site	:SAC C
Test Date	:2021-09-15
Temp./Humi.	:23.5/59
Antenna Pol.	:Vertical
Engineer	:Enzo Chang



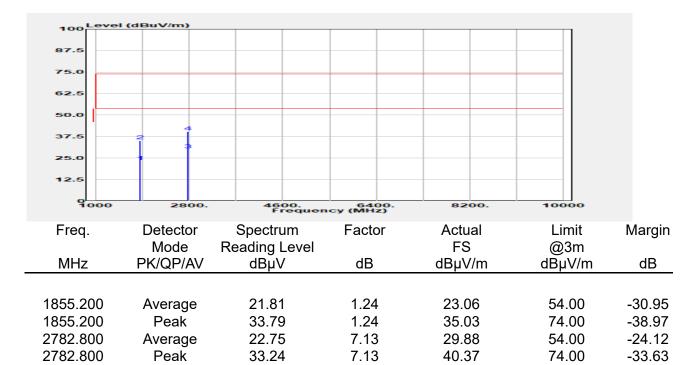
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Report Number	:E2/2021/90025
Operation Mode	:Charging Base
Test Frequency	:927.6 MHz
Test Mode	:TX CH HIGH
EUT Pol	:H Plane

Test Site	:SAC C
Test Date	:2021-09-15
Temp./Humi.	:23.5/59
Antenna Pol.	:Horizontal
Engineer	:Enzo Chang



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# **11 FREQUENCY SEPARATION**

### 11.1 Standard Applicable

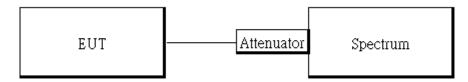
Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25 kHz or the 2/3*20dB bandwidth of the hopping channel, whichever is greater.

#### 11.2 Measurement Equipment Used:

Conducted Emission Test Site: Conducted B								
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	MODEL NUMBER SERIAL NUMBER		CAL DUE.			
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/07/2021	07/06/2022			
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R			
Coaxial Cables	Woken	00100A1F2A196C	RF70	11/19/2020	11/18/2021			
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021			
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021			
Notebook	Lenovo	L480	P0002332	N/A	N/A			

Note: N.C.R refers to Not Calibrated Required

#### 11.3 Test Set-up:



#### **11.4 Measurement Procedure:**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C63.10:2013.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set center frequency of spectrum analyzer = middle of hopping channel.
- 5. Set the spectrum analyzer as RBW, VBW=100 kHz, Adjust Span to 1.5MHz, Sweep = auto.
- 6. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

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#### 11.5 Measurement Result:

Channel separation	Limit	Result
400K	>=25 kHz or 20dB bandwidth	PASS

Note: Refer to next page for plots.

#### 11.6 **Frequency Separation Test Data**

	Spectrum Ai	nalyzer - Swept	t SA									
LXVI R	RF	50 Ω	DC			]	ISE:INT		ALIGN AUTO Type: Log-Pwr Hold: 100/100	TRA	M Sep 24, 2021 CE 1 2 3 4 5 6 PE M WWWW	Frequency
10 dB/div		Offset 10.6 <b>30.00 df</b>	dB	PNO: Wide Gain:Low		Trig: Free #Atten: 30		Avgi		ΔMkr3	400 kHz	Auto Tune
		30.00 0	<b>J</b> III				1/2		1Δ2 4		304	Center Frec 902.400000 MHz
-10.0	r		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		see.							Start Free 901.400000 MH:
-40.0 -50.0 -60.0												Stop Free 903.400000 MH
Center 9 #Res BV	N 100 H		x	#V	вw	300 kHz	500	CTION	Sweep 1	1.000 ms	2.000 MHz (1001 pts)	CF Ster 200.000 kH Auto Mar
$ \begin{array}{c cccc} 1 & \Delta 2 \\ 2 & F \\ \hline 3 & \Delta 4 \\ 4 & F \\ \hline 5 \\ 6 \\ \end{array} $	1 f 1 f	(Δ) (Δ)	902.4	100 kHz 00 MHz 100 kHz 00 MHz	· · ·	0.056 18.513 dE 0.038 18.569 dE	dB 3m dB					Freq Offse 0 H
7 8 9 10 11						m						
MSG									STATU	IS		

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# **12 NUMBER OF HOPPING FREQUENCY**

## 12.1 Standard Applicable

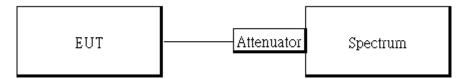
Frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequencies and the average time of occupancy on any frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

## 12.2 Measurement Equipment Used:

Conducted Emission Test Site: Conducted B									
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER SERIAL NUMBER		LAST CAL.	CAL DUE.				
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/07/2021	07/06/2022				
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R				
Coaxial Cables	Woken	00100A1F2A196C	RF70	11/19/2020	11/18/2021				
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021				
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021				
Notebook	Lenovo	L480	P0002332	N/A	N/A				

Note: N.C.R refers to Not Calibrated Required

#### 12.3 Test Set-up:



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#### **12.4 Measurement Procedure:**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C63.10:2013.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set spectrum analyzer Start= 902.4MHz, Stop = 927.6MHz, Sweep = auto.
- 5. Set the spectrum analyzer as RBW=300 kHz, VBW= 1MHz., Detector = Peak
- 6. Max hold, view and count how many channel in the band.

## 12.5 Measurement Result:

#### Wireless Microphone

Frequency (MHz)	Number of Hop- ping frequency	Limit (OBW < 250KHz)
902.4 - 927.6	64	> 50

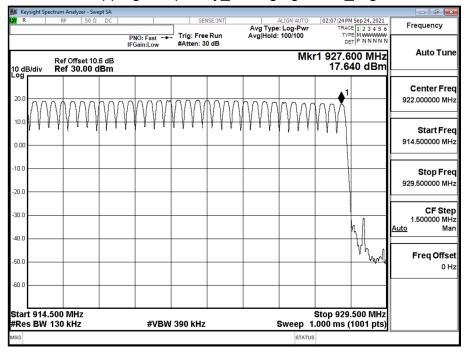
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	ectrum Analyzer -								
X/R	RF 50	Ω DC		<u> </u>	ISE:INT	Avg Type	ALIGN AUTO	02:05:38 PM Sep 24, 20 TRACE 1 2 3 4 5	6 Frequency
10 dB/div	Ref Offset Ref 30.00		PNO: Fast ++ IFGain:Low	J Trig: Free #Atten: 3		Avg Hold:		1 902.400 MH 19.036 dBi	z Auto Tune
20.0				በለበ	NUUL				Center Fred 907.000000 MHz
0.00			<u>, 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</u>		<u> </u>	₩₩₩₩ ₩₩₩₩			Start Free 899.500000 MH
20.0									Stop Free 914.500000 MH
40.0									CF Step 1.500000 MH <u>Auto</u> Mar
50.0 4 Al	) hwy W								Freq Offse
-60.0								04-m 014 500 MIL	
start 899 #Res BW	.500 MHz 130 kHz		#VBW	/ 390 kHz		:		Stop 914.500 MH .000 ms (1001 pt	
ISG							STATUS		

#### Hopping Frequency_ Charging Base _low

#### Hopping Frequency_ Charging Base _ High



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# 13 TIME OF OCCUPANCY (DWELL TIME)

## 13.1 Standard Applicable

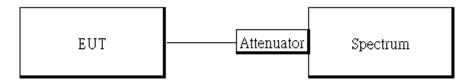
Frequency hopping systems operating in the 902MHz-928MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within a period of 20 seconds.

### 13.2 Measurement Equipment Used:

	Conduc	ted Emission Test Si	te: Conducted B		
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/07/2021	07/06/2022
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R
Coaxial Cables	Woken	00100A1F2A196C	RF70	11/19/2020	11/18/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021
Notebook	Lenovo	L480	P0002332	N/A	N/A

Note: N.C.R refers to Not Calibrated Required

#### 13.3 Test Set-up:



#### **13.4 Measurement Procedure:**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C63.10:2013.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set center frequency of spectrum analyzer = operating frequency.
- 5.Set the spectrum analyzer as RBW, VBW=100KHz, 300KHz, Span = 0Hz, Detector = Peak, Adjust Sweep = 50ms.
- 6. Repeat above procedures until all frequency of the interest measured were complete.
- 7. The measurements are using the normal operation of the equipment.

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#### **13.5** Tabular Result of the Measurement:

#### **Charging Base**

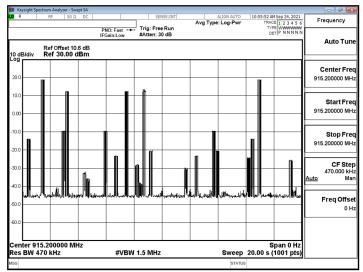
Channel	Measurement Result (ms)	Limit within 20s (ms)
32	80.00	400

#### **13.6 Measurement Result:**

Dwell Time Wireless Microphone 915.2 - Hopping-1

- 6	24.2021	5 AM Ser	11:04:55	N AUTO	ΔI 7G			NSE:IN	CE			zer - Swept SA	m Analy RF	n specin		R
Frequency	2 3 4 5 6 WWWW NNNNN	TYPE W	TR		/pe: Lo	Avg Ty		e Run	Trig: Fre #Atten: 3	Wide +++ :Low	-	1.50 % 00	14			_
Auto Tu	0 ms 9 dB		Mkr1 :	Δ								set 10.6 di ).00 dBm			B/di	
Center F			1 1	1	1			1∆2 2							⊢	0.0
915.200000 M															1	0.0
Start F 915.200000 M		+					+						-		⊢	).0 ).0
Stop F	hilitoreta		المستعام	م ایسرا		um.			http://www.	haberta di	ngiflandennitikni	si ka denta				).0 ).0 ).0
313.2000001				, law we	. Minima	- 444	AL-AP-4	droved .	antestas 1	-las/Be-childs	distriction of the second s					0.0
CF Si 100.000	<u> </u>		00.0 ms	eep 50		M	EUNCTI		300 kHz	#VBW	x	DO MHZ	kHz	915. 100	s BV	es
Freq Off			Tone		lonene		roner		-0.39 18.52 d		2.000 n 244.0 n		t (∆ t		Δ2 F	
	E							_								5 5 7 3
	Ξ.									$\pm$						8 9 0 1
	•			STATUS												Ċ

Dwell Time_ Wireless Microphone _915.2 -Hopping-2



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# **14 ANTENNA REQUIREMENT**

#### 14.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

#### 14.2 Antenna Connected Construction

The antenna is designed with unique RF connector and no consideration of replacement. Please see EUT photo for details.

~ End of Report ~

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