

TEST REPORT

Report No.: 21100732HKG-001

Design Pool Limited

Application For Certification
(Original Grant)

FCC ID: X3QSN3IN101

Wireless Power Transfer Device - Transmitter

Prepared and Checked by:

Approved by:

Signed On File
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Date: November 18, 2021

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TEST REPORT

GENERAL INFORMATION

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Manufacturer:	ASAP Technology (JiangXi) Co., Ltd.
Manufacturer Address:	No.5, Shuguang Road, West Zone Jian Country Industrial Park, Ji'an, JiangXi, 343100, China.
Brand Name:	Native Union
Model:	SN3IN101
Type of EUT:	Wireless Power Transfer Device - Transmitter
Description of EUT:	Snap 3-in-1 Magnetic Wireless Charger
Serial Number:	N/A
FCC ID:	X3QSN3IN101
Date of Sample Submitted:	October 21, 2021
Date of Test:	October 21, 2021 to November 15, 2021
Report No.:	21100732HKG-001
Report Date:	November 18, 2021
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%
Conclusion:	Test was conducted by client submitted sample. The submitted sample as received complied with the 47 CFR Part 15 Certification.

TEST REPORT

SUMMARY OF TEST RESULT

Test Specification	Reference	Results
Transmitter Power Line Conducted Emissions	15.207	Pass
Radiated Emission	15.209	Pass
Radiated Emission on the Bandedge		
Radiated Emission in Restricted Bands	15.205	Pass

The equipment under test is found to be complying with the following standards:
FCC Part 15, October 1, 2020 Edition

- Note:
1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the pervisions of this section.
 2. Pursuant to FCC part 15 Section 15.215(c), the 20 dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.

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1.0 GENERAL DESCRIPTION

1.1 Product Description

The Equipment Under Test (EUT), is a wireless charger that is designed to work on table. The EUT is powered by 110-240VAC 1.5A Adaptor with Type-C port, which is operated at 127 kHz for 7.5W (iPhone), 142kHz for 5W (AirPods) and 326kHz for 2.5W (Apple Watch) wireless power transmission.

Antenna Type: Internal, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

1.2 Related Submittal(s) Grants

This is a single application for certification of a transceiver.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). All radiated measurements were performed in an 3m Chamber. Preliminary scans were performed in the 3m Chamber only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application.

1.4 Test Facility

The 3m Chamber and conducted measurement facility used to collect the radiated data is located at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong SAR, China. This test facility and site measurement data have been placed on file with the FCC.

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2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.10 (2013).

The device was powered by 110-240VAC 1.5A Adaptor.

For maximizing emissions below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 1 meter above the ground, and the antenna polarization was changed. For maximizing emission at and above 30 MHz, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data report in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it transmits the RF signal continuously.

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

2.4 Measurement Uncertainty

Decision Rule for compliance: For FCC/IC standard, the measured value must be within the limits of applicable standard without accounting for the measurement uncertainty. For EN/IEC/HKTA/HKTC standard, conformity rules will be used as per standard directly excepted EN/IEC 61000-3-2, EN/IEC 61000-3-3, HKTA1004, HKCA1008, HKTA1019, HKTA1020, HKTA1041 and HKTA1044. For these excepted or not mentioned standards, Cl 4.2.2 of ILAC-G8:09/2019 decision rules will be reference and guard band will be equal to our measurement uncertainty with 95% confidence level (k=2). In case, the measured value is within guard band region, undetermined decision will be used.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

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2.5 Support Equipment List and Description

- 1) iPhone 12 (Provided by Intertek)
- 2) 5W Loading (Provided by Intertek)
- 3) Apple Watch (Provided by Intertek)
- 4) Adaptor, Model: A481-1503000I 100-240VAC 1.5A 50-60Hz
(Provided by Applicant)

TEST REPORT

3.0 EMISSION RESULTS

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

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

$$FS = RA + AF + CF - AG - AV$$

where FS = Field Strength in dB μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ V

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where FS = Field Strength in dB μ V/m

RR = RA - AG - AV in dB μ V

LF = CF + AF in dB

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$RA = 52.0 \text{ dB}\mu\text{V/m}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$AV = 5.0 \text{ dB}$$

$$FS = RR + LF$$

$$FS = 18 + 9 = 27 \text{ dB}\mu\text{V/m}$$

$$RR = 18.0 \text{ dB}\mu\text{V}$$

$$LF = 9.0 \text{ dB}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(27 \text{ dB}\mu\text{V/m})/20] = 22.4 \mu\text{V/m}$$

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3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 64.54 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgment: Passed by 2.98 dB

3.4 Conducted Emission Configuration Photograph

The worst case in line-conducted emission was found at 1.149 MHz

For electronic filing, the worst case line-conducted configuration photographs are saved with filename: conducted photo.pdf.

3.5 Conducted Emission Data

For electronic filing, the graph and data table of conducted emission is saved with filename: conducted.pdf.

Judgment: Pass by 7.13 dB

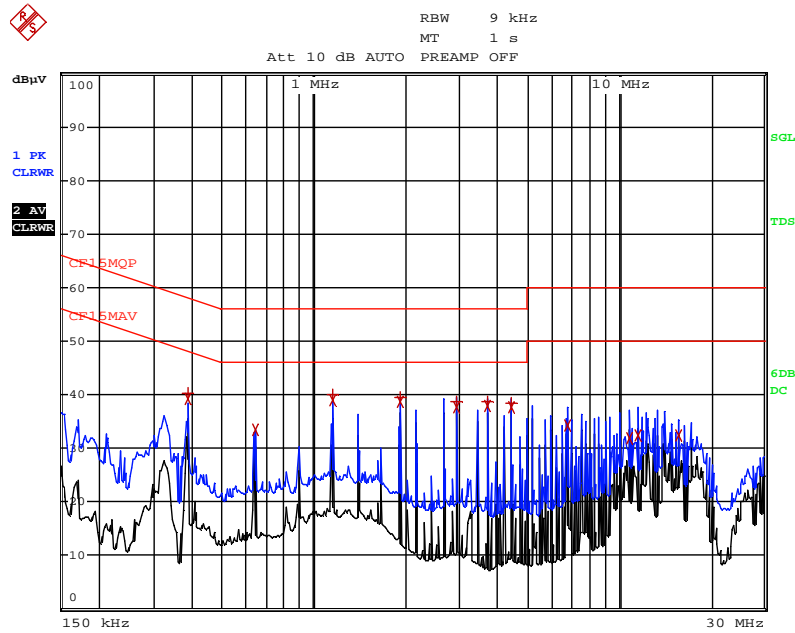
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CONDUCTED EMISSION

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: iPhone 12

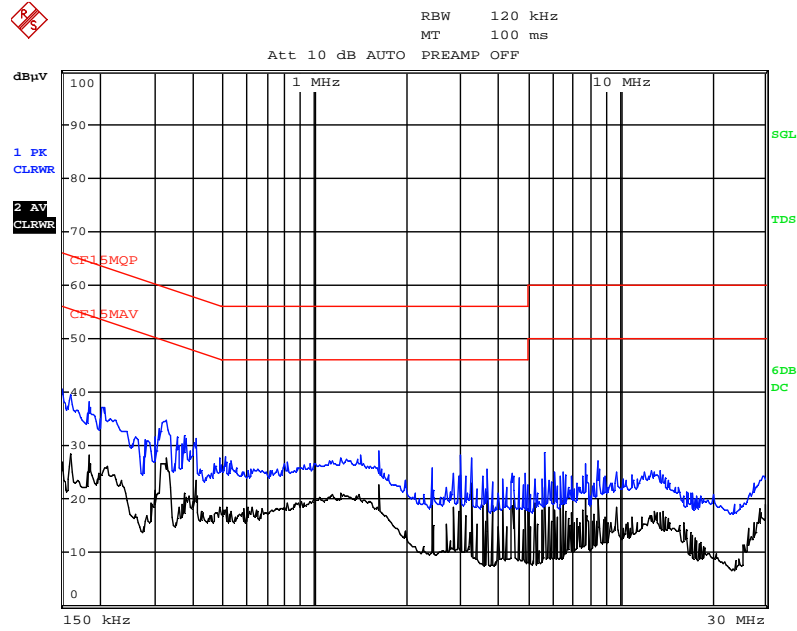


EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CF15MQP			
Trace2:	CF15MAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1 Quasi Peak	384 kHz	40.37	L1	-17.81
2 CISPR Average	384 kHz	39.20	L1	-8.98
2 CISPR Average	640.5 kHz	33.33	N	-12.66
1 Quasi Peak	1.149 MHz	39.95	N	-16.04
2 CISPR Average	1.149 MHz	38.86	N	-7.13
1 Quasi Peak	1.914 MHz	39.59	N	-16.40
2 CISPR Average	1.914 MHz	38.77	N	-7.22
1 Quasi Peak	2.9355 MHz	38.78	N	-17.21
2 CISPR Average	2.9355 MHz	37.72	N	-8.27
1 Quasi Peak	3.7005 MHz	38.79	N	-17.20
2 CISPR Average	3.7005 MHz	37.79	N	-8.20
1 Quasi Peak	4.4655 MHz	38.56	N	-17.43
2 CISPR Average	4.4655 MHz	37.55	N	-8.44
2 CISPR Average	6.765 MHz	34.16	N	-15.84
2 CISPR Average	10.8465 MHz	31.82	L1	-18.18
2 CISPR Average	11.6115 MHz	32.44	L1	-17.55
2 CISPR Average	15.6975 MHz	32.49	L1	-17.50

Note: Measurement Uncertainty is ± 4.2 dB at a level of confidence of 95%.

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Model: SN3IN101
Date of Test: November 15, 2021
Worst-Case Operating Mode: 5W Loading



EDIT PEAK LIST			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
Trace1:	CF15MQP		
Trace2:	CF15MAV		
Trace3:	---		

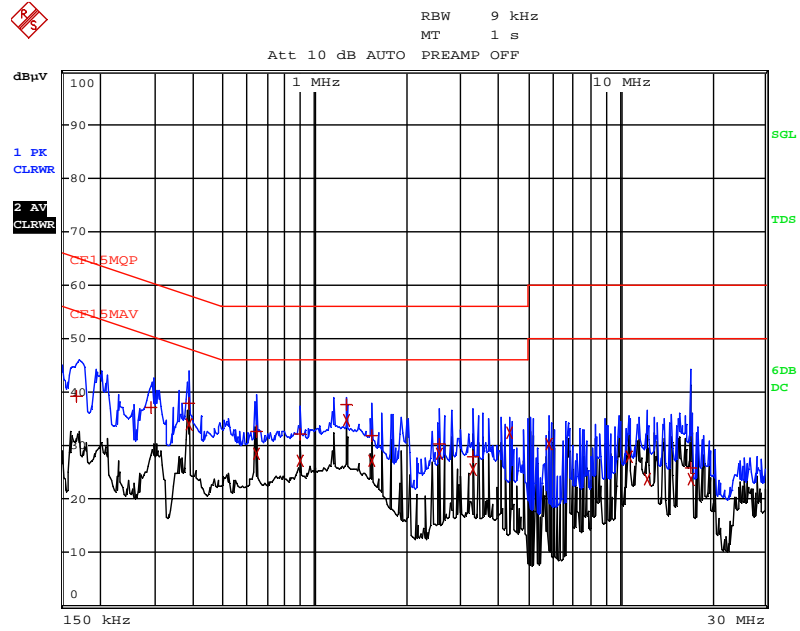
Note: Measurement Uncertainty is ± 4.2 dB at a level of confidence of 95%.

TEST REPORT

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: 5W Loading, iPhone 12 & Apple Watch



Note: Measurement Uncertainty is ± 4.2 dB at a level of confidence of 95%.

TEST REPORT

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: 5W Loading, iPhone 12 & Apple Watch

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CF15MQP			
Trace2:	CF15MAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1 Quasi Peak	168 kHz	39.20 L1		-25.85
1 Quasi Peak	289.5 kHz	37.19 L1		-23.34
1 Quasi Peak	384 kHz	37.96 L1		-20.22
2 CISPR Average	384 kHz	34.11 L1		-14.08
1 Quasi Peak	640.5 kHz	32.72 L1		-23.28
2 CISPR Average	640.5 kHz	28.58 L1		-17.41
1 Quasi Peak	892.5 kHz	32.07 L1		-23.92
2 CISPR Average	892.5 kHz	27.21 L1		-18.79
1 Quasi Peak	1.275 MHz	37.55 N		-18.44
2 CISPR Average	1.275 MHz	34.67 N		-11.32
1 Quasi Peak	1.5315 MHz	31.88 N		-24.11
2 CISPR Average	1.5315 MHz	27.19 N		-18.80
1 Quasi Peak	2.553 MHz	30.31 N		-25.68
2 CISPR Average	2.553 MHz	28.48 N		-17.51
1 Quasi Peak	3.318 MHz	27.92 N		-28.07
2 CISPR Average	3.318 MHz	25.46 N		-20.53
2 CISPR Average	4.3395 MHz	32.47 N		-13.52
2 CISPR Average	5.8695 MHz	30.33 N		-19.66
2 CISPR Average	10.7205 MHz	27.85 N		-22.14
2 CISPR Average	12.2505 MHz	23.87 N		-26.12

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CF15MQP			
Trace2:	CF15MAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1 Quasi Peak	17.1015 MHz	25.84 L1		-34.15
2 CISPR Average	17.1015 MHz	23.68 N		-26.32

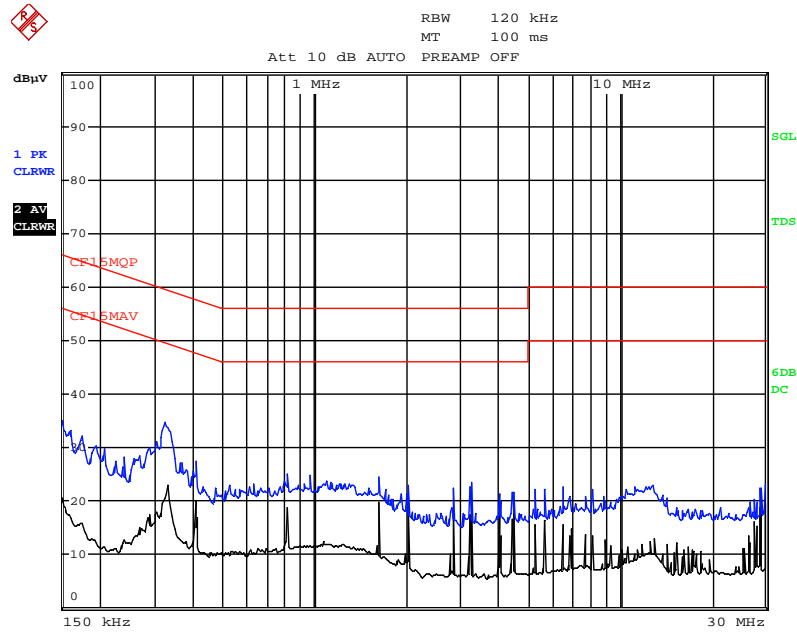
Note: Measurement Uncertainty is ±4.2dB at a level of confidence of 95%.

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Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: Standby



EDIT PEAK LIST			
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
Trace1:	CF15MOP		
Trace2:	CF15MAV		
Trace3:	---		

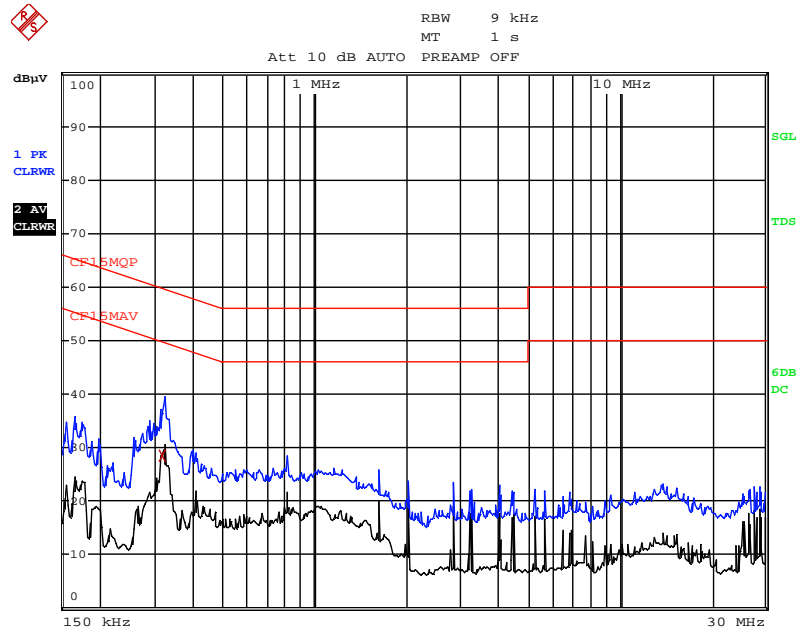
Note: Measurement Uncertainty is ± 4.2 dB at a level of confidence of 95%.

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Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: Apple Watch



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CF15MQP			
Trace2:	CF15MAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
2 CISPR Average	321 kHz	28.60 L1		-21.07

Note: Measurement Uncertainty is ± 4.2 dB at a level of confidence of 95%.

TEST REPORT

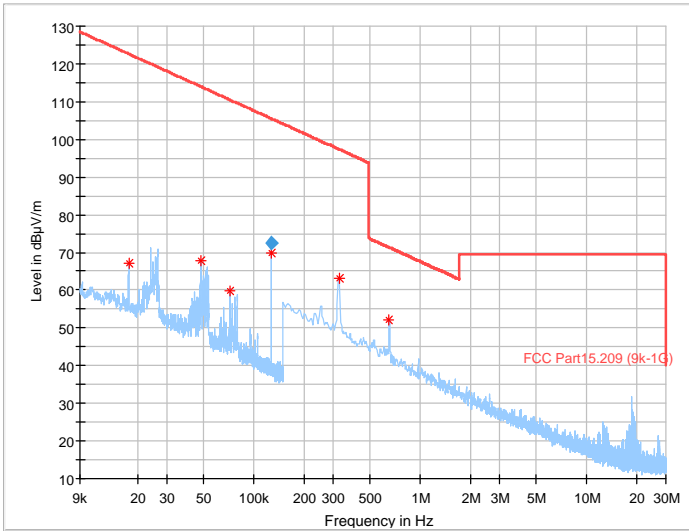
RADIATED EMISSIONS

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: Charging with iphone

Table 1
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Corr .
0.127616	72.48	---	105.49	-33.01	100.0	H	11.5

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.017672	67.28	122.66	-55.38	100.0	H	167.0	15.6
0.047757	67.72	114.02	-46.30	100.0	H	346.0	12.3
0.071604	59.96	110.51	-50.55	100.0	H	346.0	11.9
0.127616	69.94	105.49	-35.54	100.0	H	359.0	11.5
0.325369	63.29	97.36	-34.07	100.0	H	23.0	11.6
0.649988	52.17	71.35	-19.18	100.0	H	23.0	11.5

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

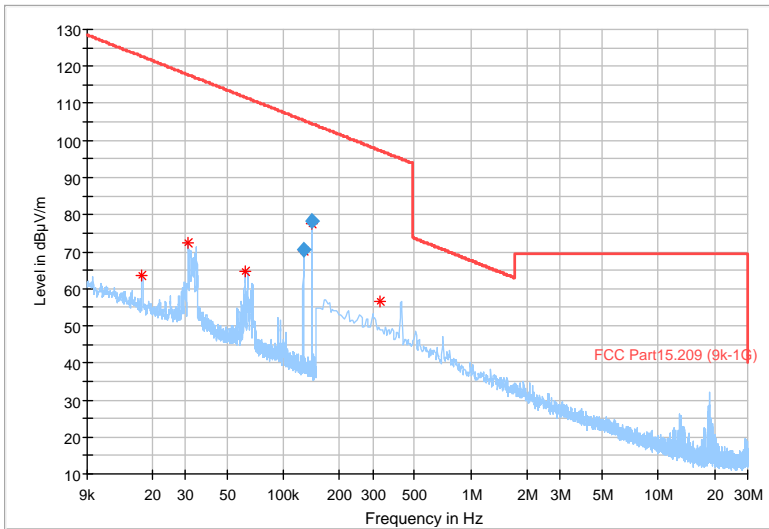
TEST REPORT

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: Charging with iphone+Apple watch+load

Table 3
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Corr .
0.127616	70.63	---	105.49	-34.85	100.0	H	11.5
0.142280	78.09	---	104.54	-26.45	100.0	H	11.3

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.017689	63.71	122.66	-58.95	100.0	H	177.0	15.6
0.031137	72.38	117.74	-45.36	100.0	H	359.0	13.7
0.062263	64.59	111.72	-47.13	100.0	H	359.0	12.0
0.127616	70.16	105.49	-35.32	100.0	H	359.0	11.5
0.142280	77.46	104.54	-27.08	100.0	H	359.0	11.3
0.326521	56.57	95.02	-38.45	100.0	H	358.0	11.6

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

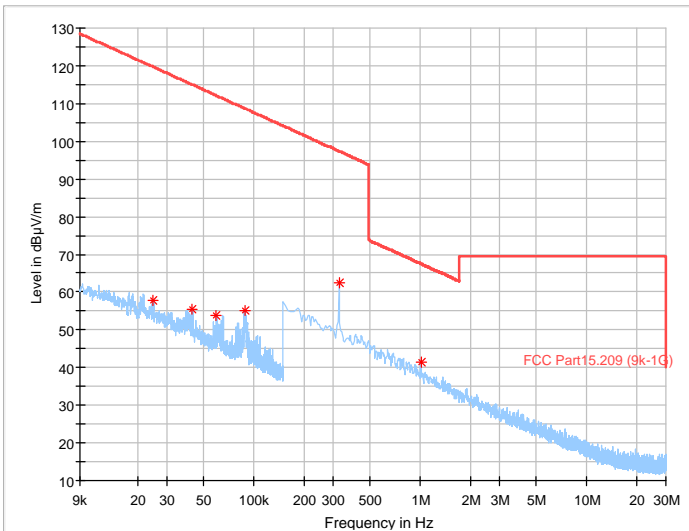
TEST REPORT

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: Charging with Apple watch

Table 5
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.059654	53.69	112.09	-58.41	100.0	H	0.0	12.1
0.326527	62.47	97.32	-34.85	100.0	H	22.0	11.6
0.088700	55.21	108.65	-53.44	100.0	H	27.0	11.8
0.024933	57.82	119.67	-61.86	100.0	H	197.0	14.1
1.011919	41.47	67.50	-26.03	100.0	H	254.0	11.5
0.042699	55.70	114.99	-59.29	100.0	H	357.0	12.7

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

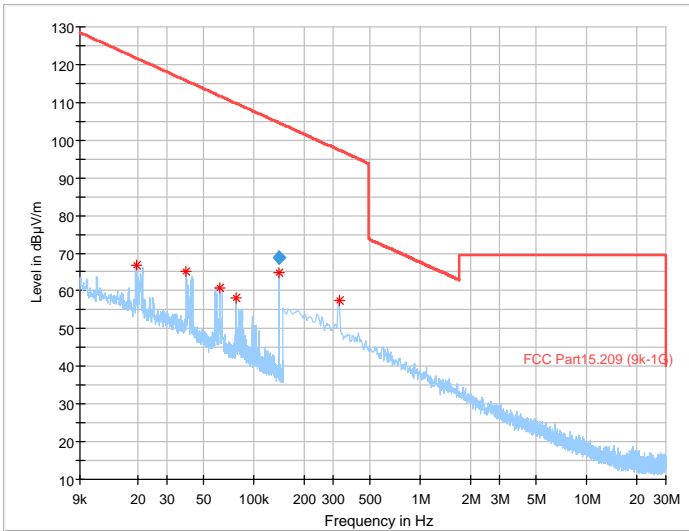
Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

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Model: SN3IN101
Date of Test: November 15, 2021
Worst-Case Operating Mode: Charging with load

Table 7
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Corr .
0.142263	68.77	---	104.54	-35.78	100.0	H	11.3

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.019593	66.91	121.76	-54.85	100.0	H	350.0	14.7
0.039192	65.11	115.74	-50.63	100.0	H	350.0	13.0
0.062316	60.94	111.72	-50.78	100.0	H	359.0	12.0
0.078548	58.24	109.70	-51.46	100.0	H	347.0	11.9
0.142263	64.67	104.54	-39.88	100.0	H	31.0	11.3
0.325369	57.37	97.36	-39.99	100.0	H	215.0	11.6

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

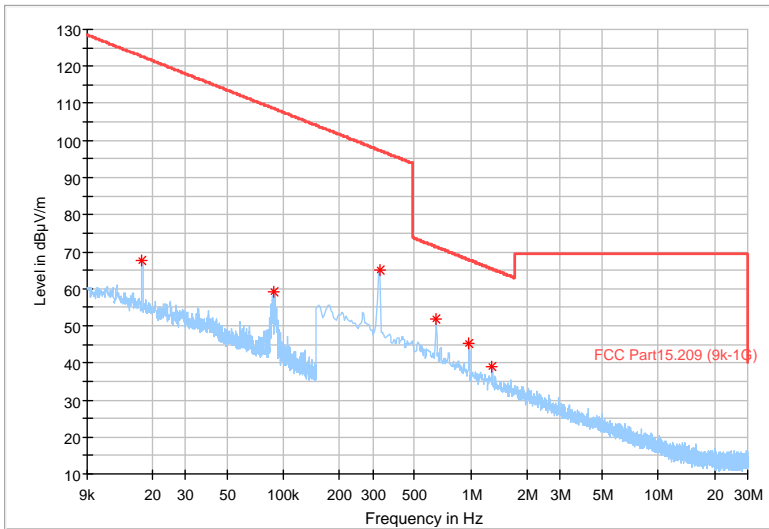
Remark:

1. $\text{Corr. (dB/m)} = \text{Antenna Factor (dB)} + \text{Cable Loss (dB)}$
2. $\text{Max Peak (dBµV/m)} = \text{Corr. (dB/m)} + \text{Read Level (dBµV)}$
3. $\text{Margin (dB)} = \text{Max Peak (dBµV/m)} - \text{Limit (dBµV/m)}$

TEST REPORT

Model: SN3IN101
Date of Test: November 15, 2021
Worst-Case Operating Mode: Standby mode

Table 9
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.017672	67.64	122.66	-55.03	100.0	H	45.0	15.6
0.088630	59.28	108.65	-49.38	100.0	H	0.0	11.8
0.325369	64.95	97.36	-32.40	100.0	H	5.0	11.6
0.649988	51.69	71.35	-19.66	100.0	H	0.0	11.5
0.978338	45.20	67.80	-22.60	100.0	H	5.0	11.5
1.302956	39.08	65.31	-26.23	100.0	H	5.0	11.6

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

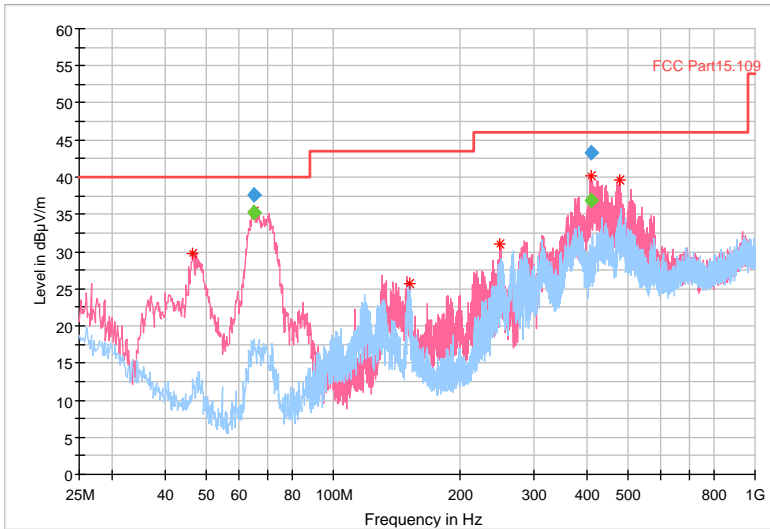
Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

TEST REPORT

Model: SN3IN101
Date of Test: November 15, 2021
Worst-Case Operating Mode: Charging with iphone

Table 10
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Corr .
64.975000	37.69	---	40.00	-2.31	100.0	V	7.7
64.975000	---	35.21	40.00	-4.79	100.0	V	7.7
409.150000	43.28	---	46.00	-2.72	100.0	V	20.1
409.150000	---	36.90	46.00	-9.10	100.0	V	20.1

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

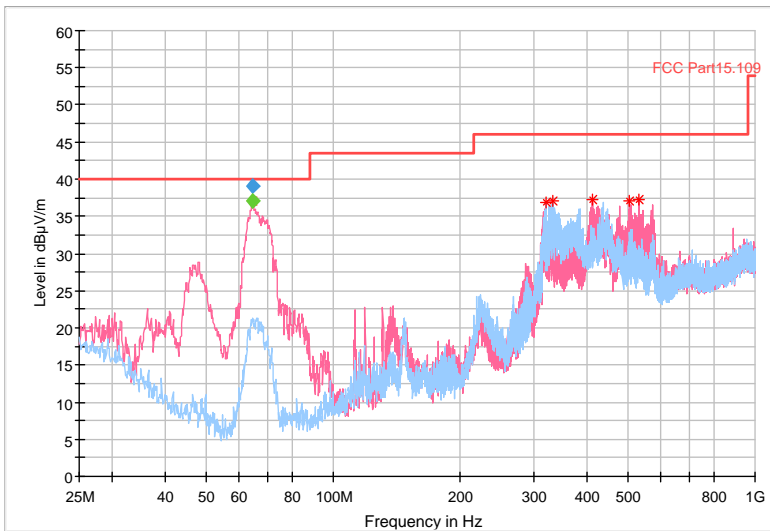
Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

TEST REPORT

Model: SN3IN101
Date of Test: November 15, 2021
Worst-Case Operating Mode: Charging with Loading

Table 12
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Corr .
64.539625	---	37.02	40.00	-2.98	200.0	V	7.8
64.539625	39.00	---	40.00	-1.00	200.0	V	7.8

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

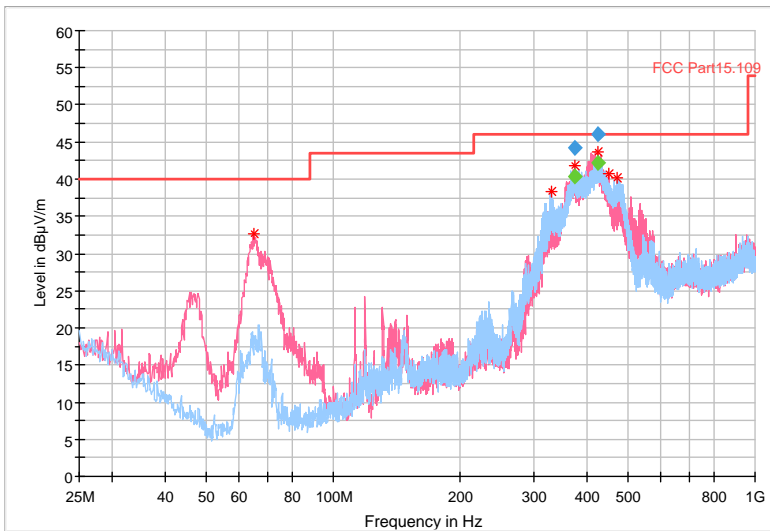
TEST REPORT

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: Charging with Apple Watch

Table 14
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Corr .
373.529200	---	40.43	46.00	-5.57	100.0	H	19.0
373.529200	44.31	---	46.00	-1.69	100.0	H	19.0
424.332275	---	42.29	46.00	-3.71	100.0	V	20.1
424.332275	46.07	---	46.00	0.07	100.0	V	20.1

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

Remark:

1. $Corr. (dB/m) = Antenna\ Factor (dB) + Cable\ Loss (dB)$
2. $Max\ Peak (dB\mu V/m) = Corr. (dB/m) + Read\ Level (dB\mu V)$
3. $Margin (dB) = Max\ Peak (dB\mu V/m) - Limit (dB\mu V/m)$

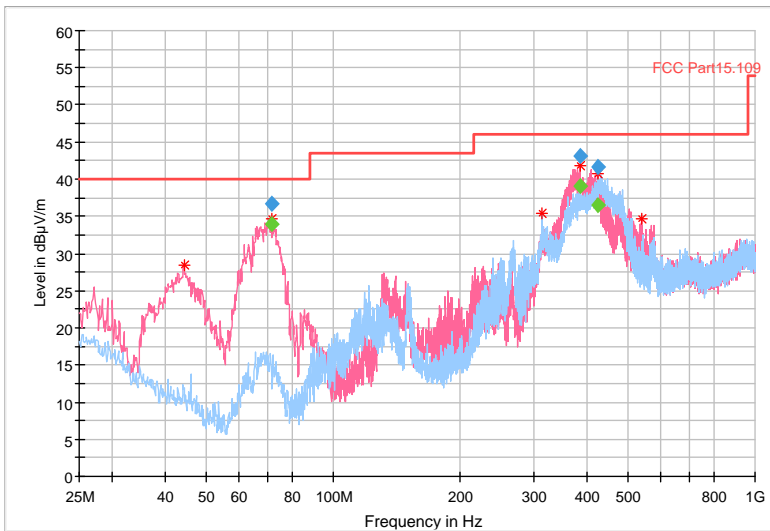
TEST REPORT

Model: SN3IN101

Date of Test: November 15, 2021

Worst-Case Operating Mode: Charging with iphone+ Apple watch+load

Table 16
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Corr .
71.434375	---	34.01	40.00	-5.99	100.0	V	8.3
71.434375	36.66	---	40.00	-3.34	100.0	V	8.3
383.921875	43.07	---	46.00	-2.93	100.0	V	19.5
383.921875	---	38.99	46.00	-7.01	100.0	V	19.5
423.043750	41.73	---	46.00	-4.27	100.0	V	20.1
423.043750	---	36.52	46.00	-9.48	100.0	V	20.1

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

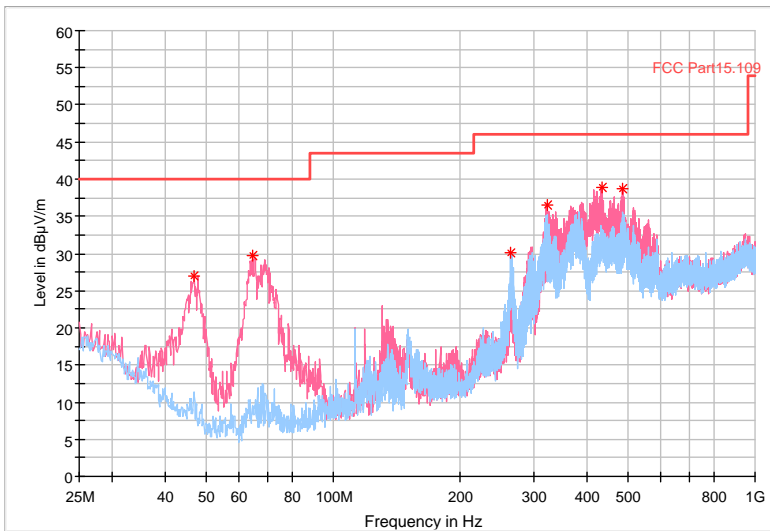
Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

TEST REPORT

Model: SN3IN101
Date of Test: November 15, 2021
Worst-Case Operating Mode: Standby mode

Table 18
Pursuant to FCC Part 15 Section 15.209 Requirement



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
46.815625	27.01	40.00	-12.99	100.0	V	21.0	8.9
64.243750	29.65	40.00	-10.35	100.0	V	119.0	7.8
263.996875	30.14	46.00	-15.86	100.0	H	56.0	14.7
321.156250	36.59	46.00	-9.41	200.0	V	339.0	16.1
435.596875	38.96	46.00	-7.04	100.0	V	30.0	20.0
485.931250	38.75	46.00	-7.25	100.0	V	26.0	21.0

- NOTES:
1. All measurements were made at 3 meters.
 2. Negative sign in the column shows value below limit.
 3. Loop antenna is used for the emissions below 30MHz.
 4. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

Remark:

1. Corr. (dB/m) = Antenna Factor (dB) + Cable Loss (dB)
2. Max Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Max Peak (dBµV/m) – Limit (dBµV/m)

TEST REPORT

4.0 EQUIPMENT PHOTOGRAPHS

For electronic filing, the photographs are saved with filename: external photos.pdf and internal photos.pdf.

5.0 PRODUCT LABELLING

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

6.0 TECHNICAL SPECIFICATIONS

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

7.0 INSTRUCTION MANUAL

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

TEST REPORT

8.0 MISCELLANEOUS INFORMATION

The miscellaneous information includes details of the test procedure and measured bandwidth.

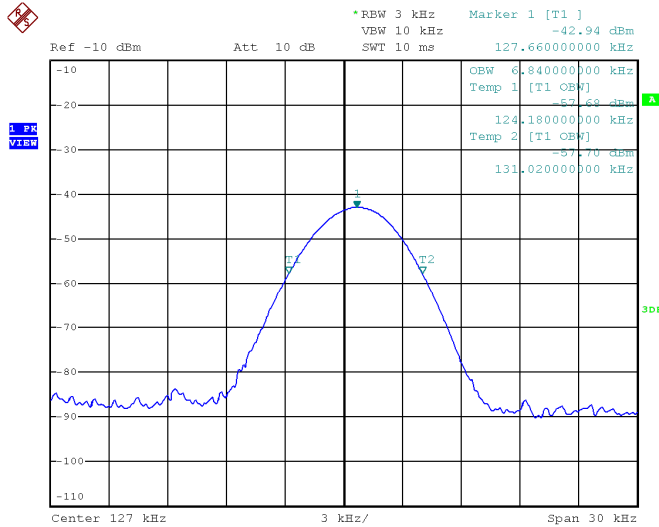
8.1 Measured Bandwidth

Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designed (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

Occupied Bandwidth Results: (iPhone 12)

Occupied Bandwidth (kHz)	
127.7kHz	6.84

The worst case is shown as below

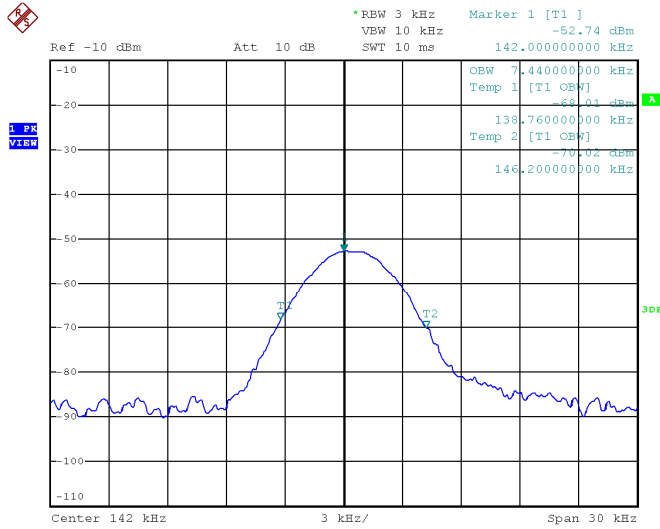


TEST REPORT

Occupied Bandwidth Results: (Loading)

Occupied Bandwidth (kHz)	
142kHz	7.44

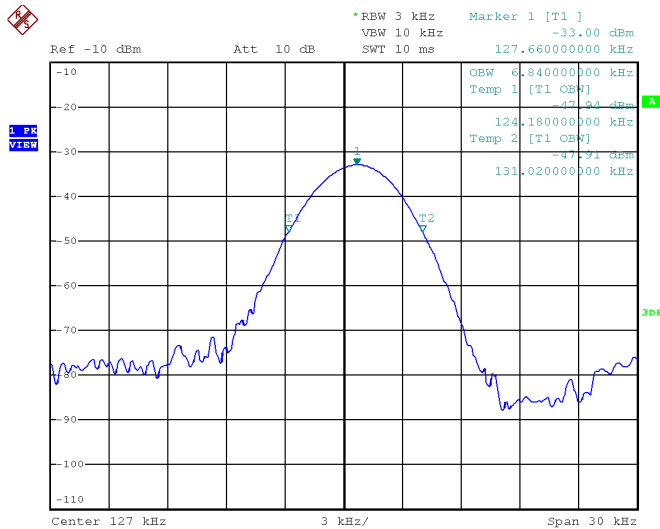
The worst case is shown as below



Occupied Bandwidth Results: (5W Loading & iPhone 12 & Apple Watch)

Occupied Bandwidth (kHz)	
127.7kHz	6.84

The worst case is shown as below

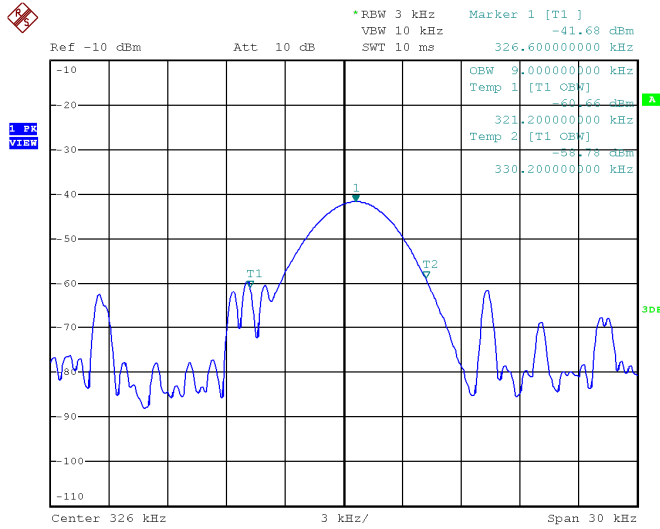


TEST REPORT

Occupied Bandwidth Results: (Standby)

Occupied Bandwidth (kHz)	
326kHz	9.00

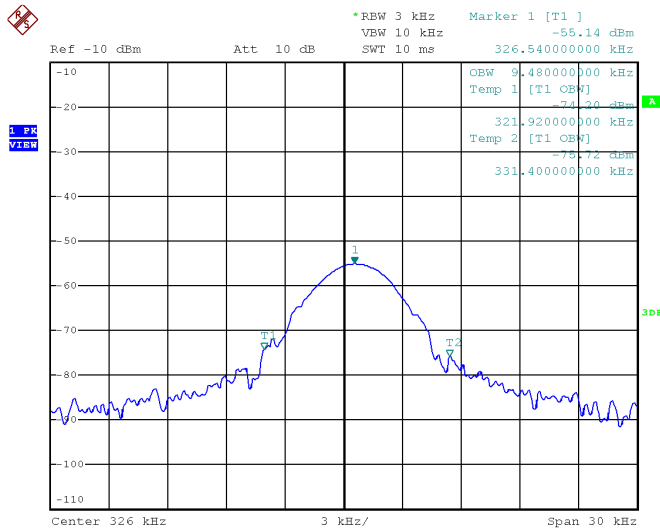
The worst case is shown as below



Occupied Bandwidth Results: (Apple Watch)

Occupied Bandwidth (kHz)	
326kHz	9.48

The worst case is shown as below



TEST REPORT

8.2 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of transmitter operating under the Part 15, Subpart C rules.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately 0.8m in height above the ground plane for emission measurement at or below 1GHz and 1.5m in height above the ground plane for emission measurement above 1GHz. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axis to obtain maximum emission levels. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Exhibit 8.3.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. For line conducted emissions, the range scanned is 150 kHz to 30 MHz.

TEST REPORT

8.2 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements were made as described in ANSI C63.10 (2013).

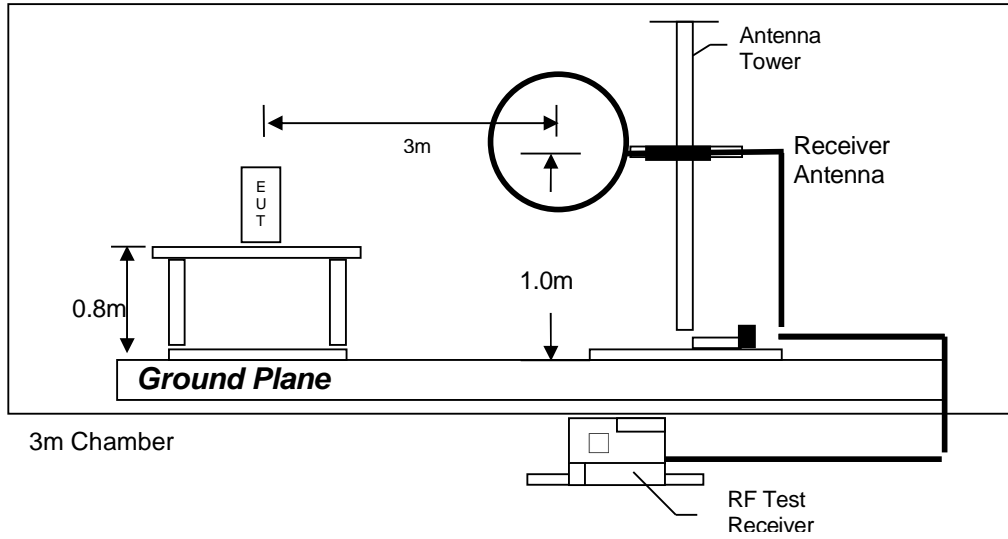
The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.1). Above 1000 MHz, a resolution bandwidth of 3 MHz is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the forbidden bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

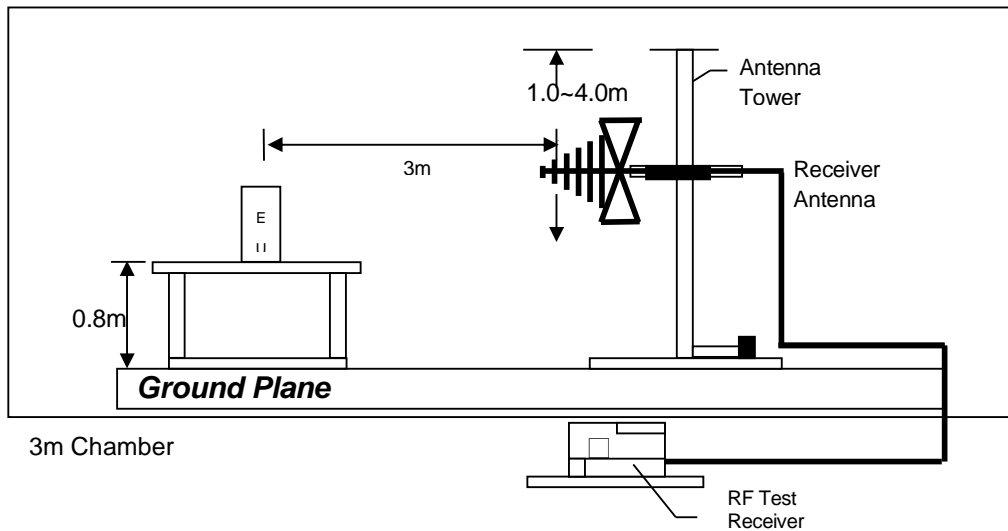
TEST REPORT

8.2.1 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 30MHz



Test setup of radiated emissions above 1GHz

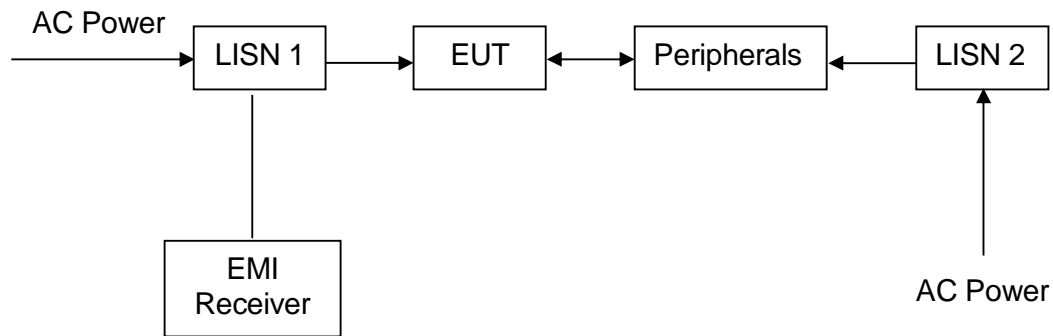
TEST REPORT

8.2.2 Conducted Emission Test Procedures

For tabletop equipment, the EUT along with its peripherals were placed on a 1.0m(W)×1.5m(L) and 0.8m in height wooden table. For floor-standing equipment, the EUT and all cables were insulated, if required, from the ground plane by up to 12 mm of insulating material. The EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were moved to find the maximum emission.

8.2.3 Conducted Emission Test Setup



TEST REPORT

9.0 CONFIDENTIALITY REQUEST

For electronic filing, a preliminary copy of the confidentiality request is saved with filename: request.pdf.

10.0 EQUIPMENT LIST

1) Radiated Emissions Test

Equipment	EMI Test Receiver (9kHz to 26.5GHz)	Spectrum Analyzer	Biconical Antenna (20MHz to 200MHz)
Registration No.	EW-3156	EW-2466	EW-2512
Manufacturer	ROHDESCHWARZ	ROHDESCHWARZ	EMCO
Model No.	ESR26	FSP30	3104C
Calibration Date	January 25, 2021	November 18, 2019	June 03, 2020
Calibration Due Date	January 25, 2022	August 18, 2022	December 03, 2021

Equipment	Log Periodic Antenna	Double Ridged Guide Antenna	RF Cable 14m (1GHz to 26.5GHz)
Registration No.	EW-3243	EW-1133	EW-2781
Manufacturer	EMCO	EMCO	GREATBILLION
Model No.	3148B	3115	SMA m/SHF5MPU /SMA m ra14m,26G
Calibration Date	June 30, 2021	June 03, 2021	November 24, 2020
Calibration Due Date	December 30, 2022	June 03, 2022	November 24, 2021

Equipment	RF Preamp (9kHz to 6000MHz)	2.4GHz Notch Filter	14m Double Shield RF Cable (20MHz to 6GHz)
Registration No.	EW-3006b	EW-3435	EW-2074
Manufacturer	SCHWARZBECK	MICROWAVE	RADIALL
Model No.	BBV9718	N0324413	N(m)-RG142-BNC(m) L=14M
Calibration Date	November 25, 2019	November 16, 2019	November 14, 2019
Calibration Due Date	June 25, 2022	June 16, 2022	August 14, 2022

Equipment	Pyramidal Horn Antenna	Active Loop H-field Antenna
Registration No.	EW-0905	EW-2313
Manufacturer	EMCO	ELECTROMETRIC
Model No.	3160-09	EM-6876
Calibration Date	July 23, 2019	December 17, 2019
Calibration Due Date	June 23, 2022	December 17, 2021

TEST REPORT

2) Conducted Emissions Test

Equipment	RF Cable 240cm (RG142) (9kHz to 30MHz)	Artificial Mains Network	EMI Test Receiver)
Registration No.	EW-2454	EW-2501	EW-2500
Manufacturer	RADIALL	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	Bnc m st / 142 / bnc mra 240cm	ENV-216	ESCI
Calibration Date	November 10, 2020	September 11, 2020	March 29, 2021
Calibration Due Date	November 10, 2022	September 11, 2022	March 29, 2022

3) OBW Measurement

Equipment	Spectrum Analyzer	5m RF Cable (40GHz)
Registration No.	EW-2466	EW-2701
Manufacturer	ROHDESCHWARZ	RADIALL
Model No.	FSP30	Sma m-m 5m 40G
Calibration Date	November 18, 2019	November 24, 2020
Calibration Due Date	August 18, 2022	November 24, 2021

END OF TEST REPORT