FCC Part 1 Subpart I
FCC Part 2 Subpart J

TEST REPORT

FOR

GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

FCC ID: PY7-12907W

REPORT NUMBER: R14634918-E9

ISSUE DATE: 2023-03-08

Prepared for
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ACCREDITED
CERT #0751.06

REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2023-02-23	Initial Issue	Brian Kiewra
V2	2023-03-08	Due to incorrect setup, all top measurements retaken.	Brian Kiewra

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0075, Japan
EUT DESCRIPTION:	GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC
SERIAL NUMBER:	QV7700ANFN(Source), QV77004MFN(Load), QV7700E1FN(Load), QV7700CRFN(Load), QV7700EDFN(Load), QV770071FN(Load)
SAMPLE RECEIPT DATE:	2022-12-12
DATE TESTED:	2023-01-20 to 2023-03-07

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 1 SUBPART I & PART 2 SUBPART J	Complies

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released
For UL LLC By:

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Consumer, Medical and IT Segment
UL Verification Services Inc.

Prepared By:

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Project Engineer
Consumer, Medical and IT Segment
UL LLC

2. TEST METHODOLOGY

All testing / calculations were made in accordance with FCC KDB 447498 D01, KDB 447498 D03, KDB 680106 D01 v03r01.

3. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. DECISION RULES

For all tests where the applicable U_{LAB} <= U_{MAX} the Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2, where U_{MAX} = 30% (0.3) for RF Exposure evaluations. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

For all tests where the applicable U_{LAB} > U_{MAX} the Decision Rule is based on Guarded Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.3.2, with a guard band equal to (U_{LAB} – U_{MAX}), where U_{MAX} = 30% (0.3) for RF Exposure evaluations. (Test results are adjusted by the value of the guard band to determine conformity with a specified requirement.)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Magnetic Field using Exposure Level Meter	+/- 0.80 dB
Electric Field using Exposure Level Meter	+/- 0.91 dB
Time	3.39%

Uncertainty figures are valid to a confidence level of 95%, k = 2.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC. This test report covers WPT testing. The device can function as a WPT charger operating from 111-145kHz.

While WPT is functioning, the device is limited to mobile use conditions and was evaluated for desktop applications.

5.2. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Power Supply	Sony	XQZ-UC1	1821W34209802	NA

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	USB	1	USB-C	Non-Shielded	<3m	Connected to power supply

TEST SETUP

The following five configurations are tested:

Configuration	Mode	Descriptions
1	Standby (Power Detecting)	EUT Alone powered by AC/DC adapter
2	Operating with server (source) and client (load) aligned (With EUT charging) Note: Measurements were made when the battery level of the client was at a state of <10%, 50%, and 100%. Spot check worst-case battery level with 5 mm air gap.	EUT powered by AC/DC adapter
3	Operating with server (source) and client (load) aligned, with 90° rotation between them. (With EUT charging) Note: Measurements were made when the battery level of the client was at a state of <10%, 50%, and 100%.	EUT powered by AC/DC adapter
4	Same as configuration 2, with a worst case misalignment between the server and client.	EUT powered by AC/DC adapter
5	Same as configuration 3, with a worst case misalignment between the server and client.	EUT powered by AC/DC adapter

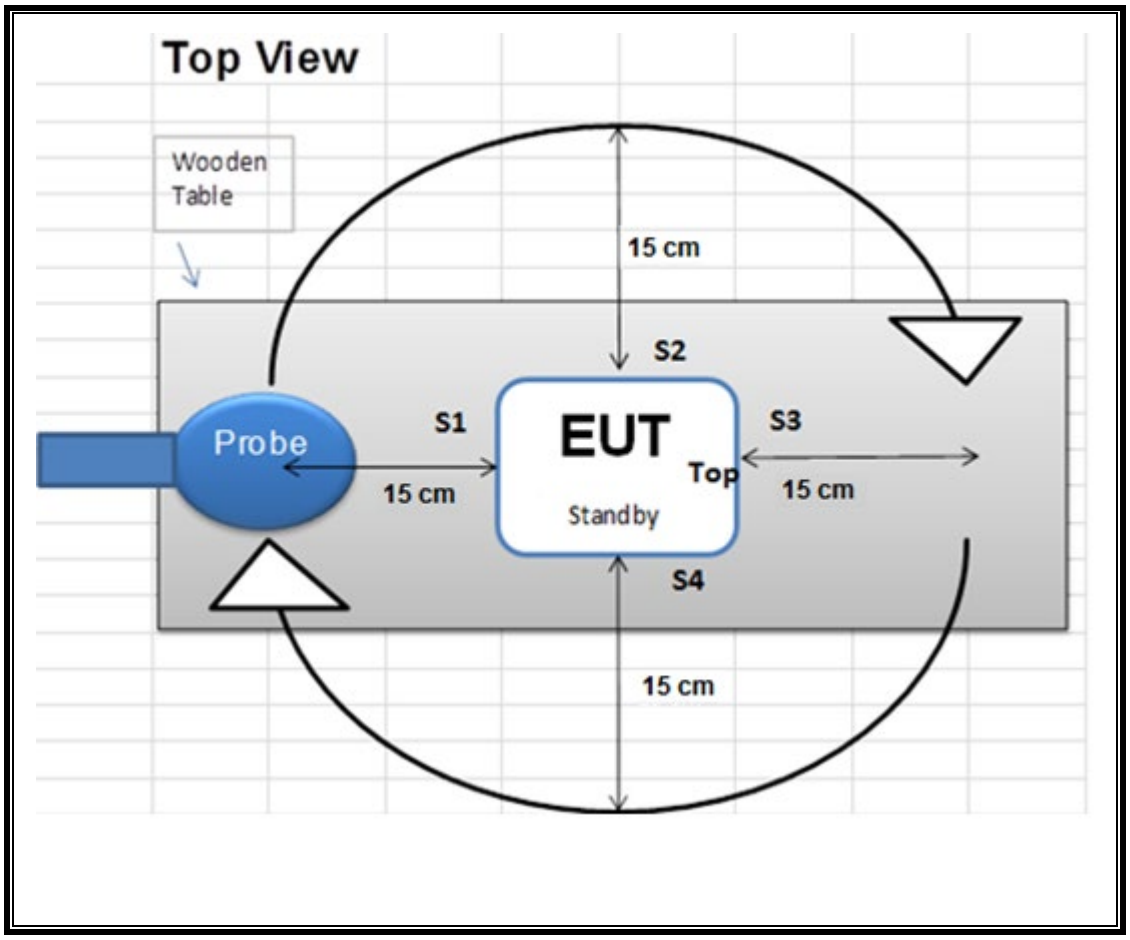
SETUP DIAGRAMS

Please refer to R14634918-EP9 for setup diagrams.

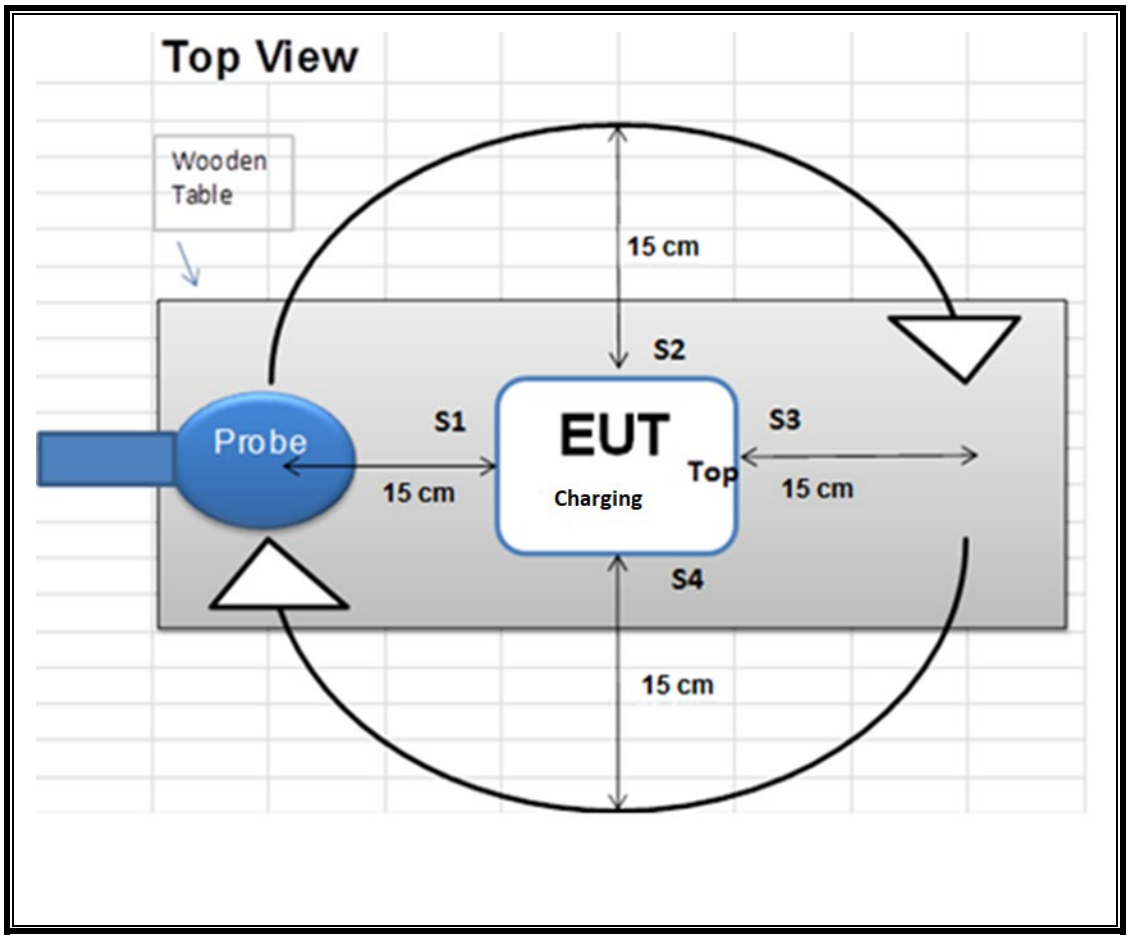
MEASUREMENT SETUP

The measurement was taken using a probe placed 15cm surrounding the device and 20cm above the top surface of the EUT.
Measurements were taken from the top and all sides of the EUT per KDB 680106 D01 v03r01.

CONFIGURATION 1



CONFIGURATIONS 2-5



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment were used for the tests documented in this report:

Test Equipment List					
Description	**Manufacturer**	**Model**	**Equip. ID**	**Cal Date**	**Cal Due**
Electric and Magnetic Field Probe	Narda	EHP-200AC	FA0001	2022-07-20	2023-07-20
Spectrum Analyzer	Keysight	N9030A	SA0027	2022-05-24	2023-05-24

7. DUTY CYCLE

LIMITS

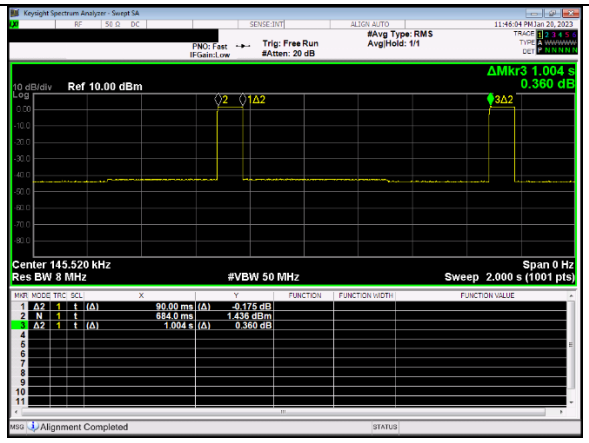
None; for reporting purposes only.

PROCEDURE

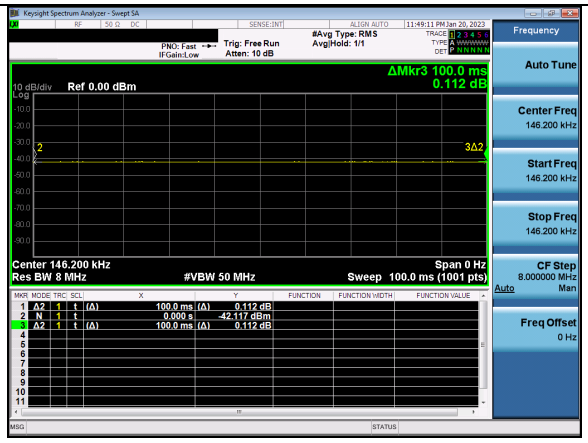
Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)
Standby (Config 1)	90.00	1004.00	0.0896	8.96%
Operating(Config 2+3)	100.00	100.00	1.00	100.00%



STANDBY MODE



OPERATING MODE

Tested By: 84740/21193

8. MAXIMUM PERMISSIBLE RF EXPOSURE TEST RESULTS

8.1. FCC LIMITS

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.
NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

Note: The limit at 300 kHz was used for devices operating between 100-300 kHz.

8.2. SUMMARY OF TEST RESULTS

RESULTS

ID:	84740/21193	Date:	2023-01-20 – 2023-01-24

Note: Both magnetic and electric field strengths have been investigated from 9 kHz to 30 MHz at 15cm surrounding the device and 20cm above the top surface of the EUT operation frequency at 111-145 kHz.

The inductive wireless power transfer device meets all of the following requirements:

☒ Power transfer frequency is less than 1 MHz
☒ Output power from each primary coil is less than or equal to 15 watts.
☒ The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
☒ Client device is placed directly in contact with the transmitter.
☒ Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
☒ The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

FCC RF EXPOSURE SUMMARY OF RESULTS

Electric Field			Magnetic Field		
FCC Limit (V/m)	Maximum Average Reading (V/m)	Percentage (%)	FCC Limit (A/m)	Maximum Average Reading (A/m)	Percentage (%)
614	2.616	0.43%	1.63	0.159	9.75%

Note: since the E and H field are lower than the limit by more than 50% of the limit then a PAG is not required.

8.3. DETAILED TEST RESULTS

E- FIELD AND H- FIELD MEASUREMENTS

Note: Peak measurements were performed. RMS values were calculated from the peak measurement. Please refer to the formula for calculating the RMS values: [Field Strength x √Duty Cycle].

Config	Test Mode	Meas Dist (cm)	E field Limit (V/m)	Electric Field Reading (V/m)				Magnetic Field Limit (A/m)	Magnetic Field Reading (A/m)			
			FCC	Location	Peak	Duty Cycle %	FCC Average	FCC	Location	Peak	Duty Cycle %	FCC Average
1	Standby	15 cm surrounding the device (S1 - S4) and 20 cm above the top surface of the EUT	614	S1	0.407	8.96	0.122	1.63	S1	0.100	8.96	0.030
				S2	0.353		0.106		S2	0.040		0.012
				S3	0.362		**0.108**		S3	0.064		0.019
				S4	0.392		0.117		S4	0.028		0.008
				Top	0.493		0.148		Top	0.303		0.091
				Max	0.493		**0.148**		Max	0.303		0.091
2	Operating Power < 10% Charging			S1	0.539	100.00	0.539		S1	0.025	100.00	0.025
				S2	0.481		0.481		S2	0.010		0.010
				S3	0.525		0.525		S3	0.024		0.024
				S4	0.527		0.527		S4	0.011		0.011
				Top	0.551		0.551		Top	0.010		0.010
				Max	0.551		0.551		Max	0.025		0.025
	Operating Power 50% Charging			S1	0.545	100.00	0.545		S1	0.019	100.00	0.019
				S2	0.520		0.520		S2	0.011		0.011
				S3	0.554		0.554		S3	0.021		0.021
				S4	0.540		0.540		S4	0.011		0.011
				Top	0.542		0.542		Top	0.013		0.013
				Max	0.554		0.554		Max	0.021		0.021
	Operating Power 100 % Charged			S1	0.555	100.00	0.555		S1	0.015	100.00	0.015
				S2	0.535		0.535		S2	0.006		0.006
				S3	0.560		0.560		S3	0.013		0.013
				S4	0.567		0.567		S4	0.006		0.006
				Top	0.565		0.565		Top	0.010		0.010
				Max	0.567		0.567		Max	0.015		0.015
	Operating Power 100 % Charged with 5 mm air gap			S1	0.545	100.00	0.545		S1	0.043	100.00	0.043
				S2	0.493		0.493		S2	0.008		0.008
				S3	0.537		0.537		S3	0.045		**0.045**
				S4	0.477		0.477		S4	0.007		0.007
				Top	0.648		**0.648**		Top	0.014		0.014
				Max	0.648		**0.648**		Max	0.045		**0.045**
3	Operating Power < 10% Charging			S1	2.455	100.00	2.455		S1	0.031	100.00	0.031
				S2	0.564		0.564		S2	0.016		0.016
				S3	1.557		1.557		S3	0.023		0.023
				S4	0.423		0.423		S4	0.014		0.014
				Top	0.964		0.964		Top	0.011		0.011
				Max	2.455		2.455		Max	0.031		0.031
	Operating Power 50% Charging			S1	2.616	100.00	**2.616**		S1	0.032	100.00	**0.032**
				S2	0.525		0.525		S2	0.015		0.015
				S3	1.530		1.530		S3	0.021		0.021
				S4	0.489		0.489		S4	0.013		0.013
				Top	0.969		0.969		Top	0.010		0.010
				Max	2.616		**2.616**		Max	0.032		**0.032**
	Operating Power 100 % Charged			S1	2.506	100.00	2.506		S1	0.030	100.00	0.030
				S2	0.586		0.586		S2	0.015		0.015
				S3	1.508		1.508		S3	0.020		0.020
				S4	0.555		0.555		S4	0.013		0.013
				Top	0.907		0.907		Top	0.011		0.011
				Max	2.506		2.506		Max	0.030		0.030

Config	Test Mode	Meas Dist (cm)	E field Limit (V/m)	Electric Field Reading (V/m)				Magnetic Field Limit (A/m)	Magnetic Field Reading (A/m)			
			FCC	Location	Peak	Duty Cycle %	FCC Average	FCC	Location	Peak	Duty Cycle %	FCC Average
4	Operating Power < 10% Charging	15 cm surrounding the device (S1 - S4) and 20 cm above the top surface of the EUT	614	S1	0.408	100.00	0.408	1.63	S1	0.026	100.00	0.026
				S2	0.385		0.385		S2	0.040		0.040
				S3	0.401		0.401		S3	0.034		0.034
				S4	0.450		0.450		S4	0.036		0.036
				Top	0.376		0.376		Top	0.012		0.012
				Max	0.450		0.450		Max	0.040		0.040
	Operating Power 50% Charging			S1	0.469	100.00	0.469		S1	0.048	100.00	0.048
				S2	0.408		0.408		S2	0.062		0.062
				S3	0.439		0.439		S3	0.082		0.082
				S4	0.463		0.463		S4	0.071		0.071
				Top	0.421		0.421		Top	0.018		0.018
				Max	0.469		0.469		Max	0.082		0.082
	Operating Power 100 % Charged			S1	0.502	100.00	0.502		S1	0.088	100.00	0.088
				S2	0.430		0.430		S2	0.071		0.071
				S3	0.470		0.470		S3	0.148		**0.148**
				S4	0.455		0.455		S4	0.082		0.082
				Top	0.565		**0.565**		Top	0.013		0.013
				Max	0.565		**0.565**		Max	0.148		**0.148**
5	Operating Power < 10% Charging			S1	1.355	100.00	1.355		S1	0.111	100.00	0.111
				S2	0.391		0.391		S2	0.038		0.038
				S3	0.743		0.743		S3	0.053		0.053
				S4	0.422		0.422		S4	0.031		0.031
				Top	0.478		0.478		Top	0.016		0.016
				Max	1.355		1.355		Max	0.111		0.111
	Operating Power 50% Charging			S1	1.495	100.00	1.495		S1	0.131	100.00	0.131
				S2	0.351		0.351		S2	0.043		0.043
				S3	0.807		0.807		S3	0.076		0.076
				S4	0.391		0.391		S4	0.037		0.037
				Top	0.449		0.449		Top	0.023		0.023
				Max	1.495		1.495		Max	0.131		0.131
	Operating Power 100 % Charged			S1	1.956	100.00	**1.956**		S1	0.159	100.00	**0.159**
				S2	0.409		0.409		S2	0.063		0.063
				S3	0.913		0.913		S3	0.079		0.079
				S4	0.423		0.423		S4	0.056		0.056
				Top	0.481		0.481		Top	0.022		0.022
				Max	1.956		**1.956**		Max	0.159		**0.159**

Note: QV7700E1FN, QV7700CRFN, and QV7700EDFN used for 0% and 50% states. QV770071FN and QV77004MFN used for 100% state

9. SETUP PHOTO

Please refer to R14634918-EP9 for setup photos.

END OF REPORT