TEST REPORT

Report Number: 15205794-E1V2

Applicant	:	BELKIN INTERNATIONAL, INC. 555 S. AVIATION BLVD., SUITE 180 EL SEGUNDO, CA 90245, USA
Model	:	WIZ027
FCC ID	:	K7SWIZ027
EUT Description	:	BoostCharge Pro 2-in-1 Magnetic Charging Dock
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
2024-05-28

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
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ACCREDITED
CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-05-09	Initial Issue	---
V2	2024-05-28	Updated Section 9	Benjamin D

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BELKIN INTERNATIONAL, INC.
555 S. AVIATION BLVD., SUITE 180
EL SEGUNDO, CA 90245, USA

EUT DESCRIPTION: BoostCharge Pro 2-in-1 Magnetic Charging Dock

MODEL NUMBER: WIZ027

BRAND: belkin

SERIAL NUMBER: 59V10F62E31703

SAMPLE RECEIPT DATE: 2024/03/04

DATE TESTED: 2024/03/28 – 2024/04/05

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	Complies

UL Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

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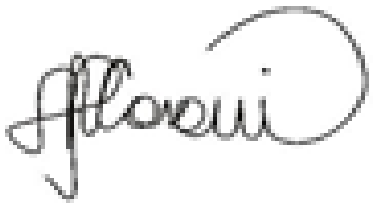
Approved & Released By:	Reviewed By:	Report By:
		
Dan Coronia Operations Leader UL Verification Services Inc.	Steven Tran Project Engineer UL Verification Services Inc.	Ben Dobbins Senior Test Engineer UL Verification Services Inc.

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2. TEST METHODOLOGY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

The tests documented in this report were performed in accordance with:
ANSI C63.10-2013
FCC CFR 47 Part 2
FCC CFR 47 Part 15
KDB 414788 D01 Radiated Test Site v01r01

3. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, 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 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☐	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☐	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
☐	Building 5: 47670 Kato Rd, Fremont, CA 94538 USA			

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4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating 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}
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	2.75%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz (E-field)	2.84 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz (H-field)	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT, BoostCharge Pro 2-in-1 Magnetic Charging Dock, is a dual coil wireless charger capable of charging two client devices at the same time.

The first coil is used for charging a Qi2 compatible phone at 360kHz (15W Max), a Qi compatible phone at 127.7kHz (7.5W Max), or an AirPods case at 127.7kHz (1W Max) The second coil is used to charge an Apple Watch (5W Max). The EUT is powered though a USB-C to USB-Cable that is connected to a USB-C AC/DC adapter and hardwired at the EUT side.

The EUT is sold with a 30W single port USB PD Type-C Power Supply

5.2. MAXIMUM E-FIELD STRENGTH

The transmitter has maximum peak radiated electric field strength as follows:

Fundamental Frequency (kHz)	**E field (300m distance) (dBuV/m)**
326.5 (standby)	-24.67
360 (MagSafe phone 15W)	-32.55
127.7 (Legacy iPhone 7.5W)	-14.81
127.7 (AirPods Pro Case 1W)	-10.04
326.5 (Legacy Watch)	-34.21
Fundamental Frequency	**E field (30m distance) FCC (dBuV/m)**
1778 (New Watch)	5.86

5.3. SOFTWARE AND FIRMWARE

The firmware version installed in the EUT during testing was:
127.7kHz/360kHz: V1.8
326.5kHz/1778kHz: V2.0.3

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5.4. WORST-CASE CONFIGURATION

Testing for MagSafe phone is based on direct contact with no shifts in position due to the embedded magnet in the charger pads.

Legacy phone does not have an embedded magnet, is placed at the maximum power position during the testing.

Even though New AirPods Pro Case has embedded magnet, it is not strong enough to be attached to the charging pad, it is placed at the maximum power position during the testing.

For the entire radiated emissions test, the EUT was tested in desktop mode in the following configurations. The client devices where charging between 20% to 50% state of charge.

Radiated spurious emission 30MHz to 1GHz and AC conducted emissions were performed on Configuration 1 & 7 at EUT minimum and maximum load as worst-case.

Evaluation for the worst case for both 30W single port USB PD Type C Power Supply: Model A1C030A and Model S136 for radiated emissions 30MHz to 1GHz and AC conducted emissions. It was determined that Model A1C030A was the worst case, therefore configurations 1-6 were tested with the worst case power supply.

The following configurations were tested:

Config	Descriptions	Frequency	Client and worst-case orientation
1	EUT is powered by AC/DC adapter.	326.5kHz	Standby. No WPT client used.
2	EUT is powered by AC/DC adapter. Direct contact during charging/operating between the EUT & WPT Client(s).	360kHz (15W)	Coil 1: MagSafe Phone. With reference to the bottom of the phone, phone is placed 180 degrees turned counterclockwise from the EUT's USB cable position. Charging pad on flatbed position.
3		127.7kHz (7.5W)	Coil 1: Legacy Phone. With reference to the bottom of the phone, phone is placed 90 degrees turned counterclockwise from the EUT's USB cable position. Charging pad as flatbed position as normal used.
4		127.7kHz (1W)	Coil 1: AirPods Pro Case: With reference to the bottom of the Airpod Pro Case, case is placed 180 sdegrees turned counterclockwise from the EUT's USB cable position. Charging pad as flatbed position as normal used.
5		326.5kHz (1W)	Coil 2: Legacy watch. With reference to the bottom of the watch, watch is turned 90 degrees counterclockwise from the EUT's USB cable position.
6		1.778MHz (5W)	Coil 2: Series 8 watch. With reference to the bottom of the watch, watch is turned 180 degrees counterclockwise from the EUT's USB cable position.
7		360kHz (15W) + 1.778MHz (5W)	Coil 1: AirPods at 0 degree. Coil 2: Series 8 watch. Watch is placed in same position as configuration 6.s

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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

RADIATED EMISSIONS TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO METRICS	EM-6871	219908	2024-05-31	2023-05-31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO METRICS	EM-6872	219910	2024-05-31	2023-05-31
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	80714	2024-10-31	2023-10-31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201497	2025-02-28	2024-02-28
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	170648	2025-03-31	2024-03-31
AC MAINS LINE CONDUCTED EMISSIONS TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
LISN	Fischer Custom Communications, Inc`	FCC-LISN-50/250-25-2-01-480V	175765	2025-01-31	2024-01-31
EMI TEST RECEIVER	Rohde & Schwarz	ESR	171646	2025-02-28	2024-02-28
Transient Limiter	TE	TBFL1	207996	2024-08-31	2023-08-31
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Rev 9.5 2023-05-01, 2021-12-07		
AC Line Conducted Software	UL	UL EMC	Rev 9.5 2023-03-03		

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7. OCCUPIED BANDWIDTH

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 300Hz. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

RESULTS

Test Engineer:	12559

Configuration	Frequency (kHz)	99% Bandwidth (Hz)
1	326.5	673.684
2	360	681.125
3	127.7	661.340
4	127.7	664.642
5	326.5	691.554
6	1778	663.550

Note: Configuration 1 in standby mode, 1st coil no signal presents. 2nd coil signal presents.

CONFIGURATION 1 (326.5kHz)

CONFIGURATION 2 (360kHz)

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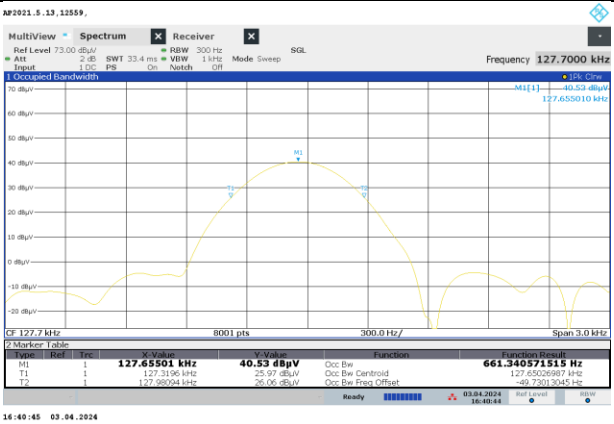
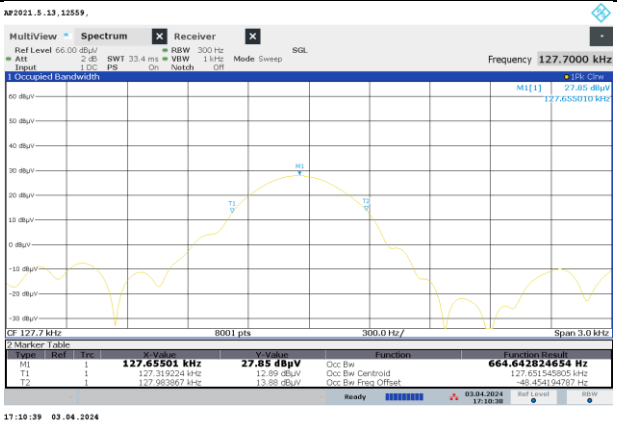


CONFIGURATION 3 (127.7kHz)



CONFIGURATION 4 (127.7kHz)

CONFIGURATION 5 (326.5kHz)

CONFIGURATION 6 (1778kHz)

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8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

FCC §15.209 (a)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3
Note: The lower limit shall apply at the transition frequency.		

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only. Blue color trace on plots: Parallel orientation. Green color trace on plots: Perpendicular orientation.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

RESULTS

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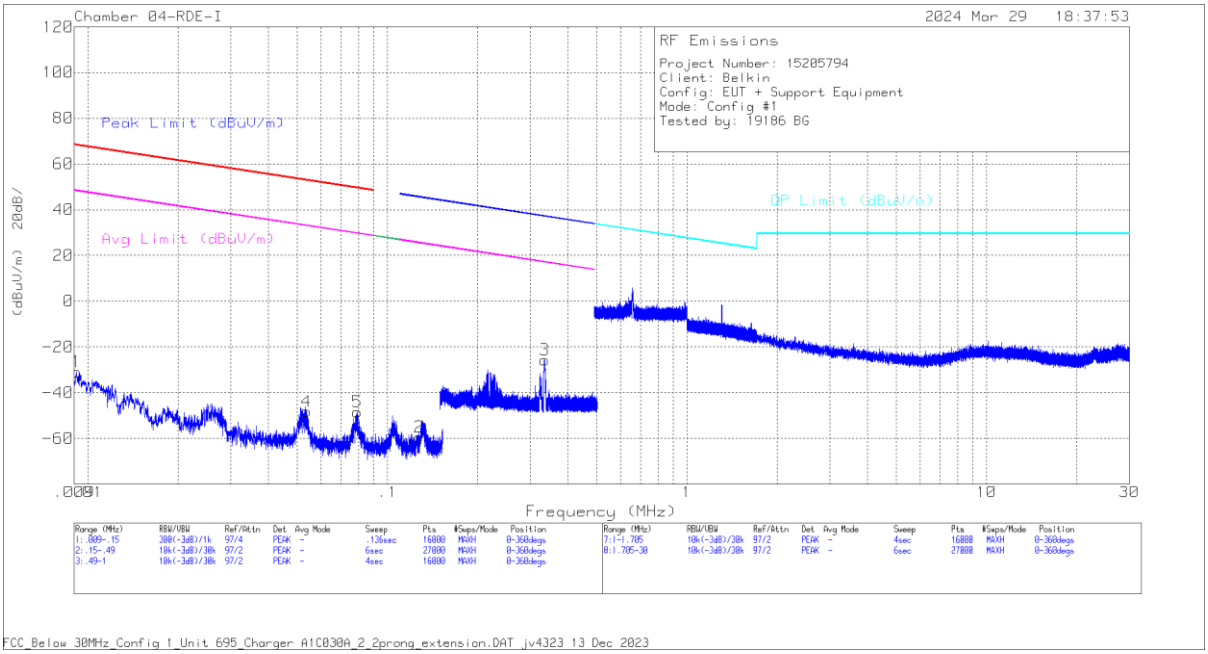
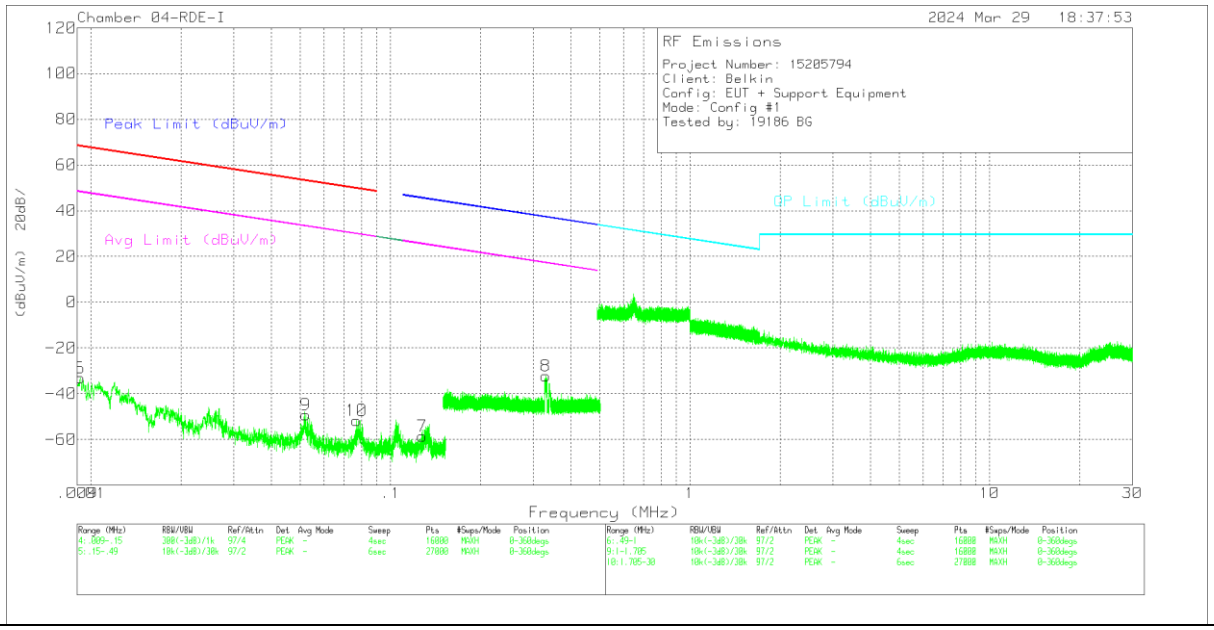
8.2. FCC TX FUNDAMENTAL AND SPURIOUS EMISSIONS FROM 9 kHz TO 30 MHz

8.2.1. CONFIGURATION 1: WPT ON STANDBY (326.5kHz)





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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0092	19.21	Pk	61	-31.2	-80	-30.99	68.35	-99.34	48.35	-79.34	0-360
2	.1275	-3.18	Pk	55.7	-32	-80	-59.48	45.52	-105	25.52	-85	0-360
3	.3343	30.42	Pk	56.1	-32.1	-80	-25.58	37.13	-62.71	17.13	-42.71	0-360
4	.0538	7.1	Pk	56.7	-32.1	-80	-48.3	52.97	-101.27	32.97	-81.27	0-360
5	.0795	8.16	Pk	55.6	-32.3	-80	-48.54	49.58	-98.12	29.58	-78.12	0-360
7	.1275	-2.39	Pk	55.7	-32	-80	-58.69	45.51	-104.2	25.51	-84.2	0-360
8	.3308	23.63	Pk	56.1	-32.1	-80	-32.37	37.22	-69.59	17.22	-49.59	0-360
6	.0092	17.13	Pk	61	-31.2	-80	-33.07	68.3	-101.37	48.3	-81.37	0-360
9	.0521	6.06	Pk	56.8	-32.1	-80	-49.24	53.25	-102.49	33.25	-82.49	0-360
10	.0771	4.94	Pk	55.7	-32.3	-80	-51.66	49.84	-101.5	29.84	-81.5	0-360

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
.3262	31.33	Pk	56.1	-32.1	-80	-24.67	37.34	-62.01	17.34	-42.01	80
.327	24.54	Pk	56.1	-32.1	-80	-31.46	37.32	-68.78	17.32	-48.78	20

Pk - Peak detector

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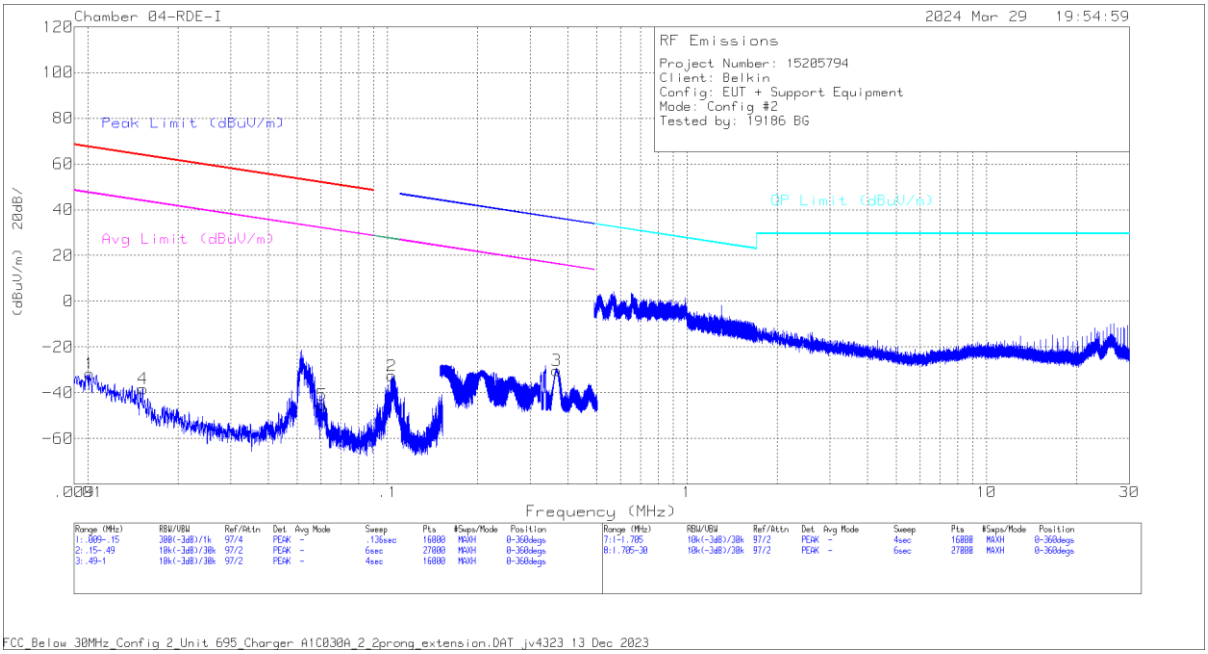
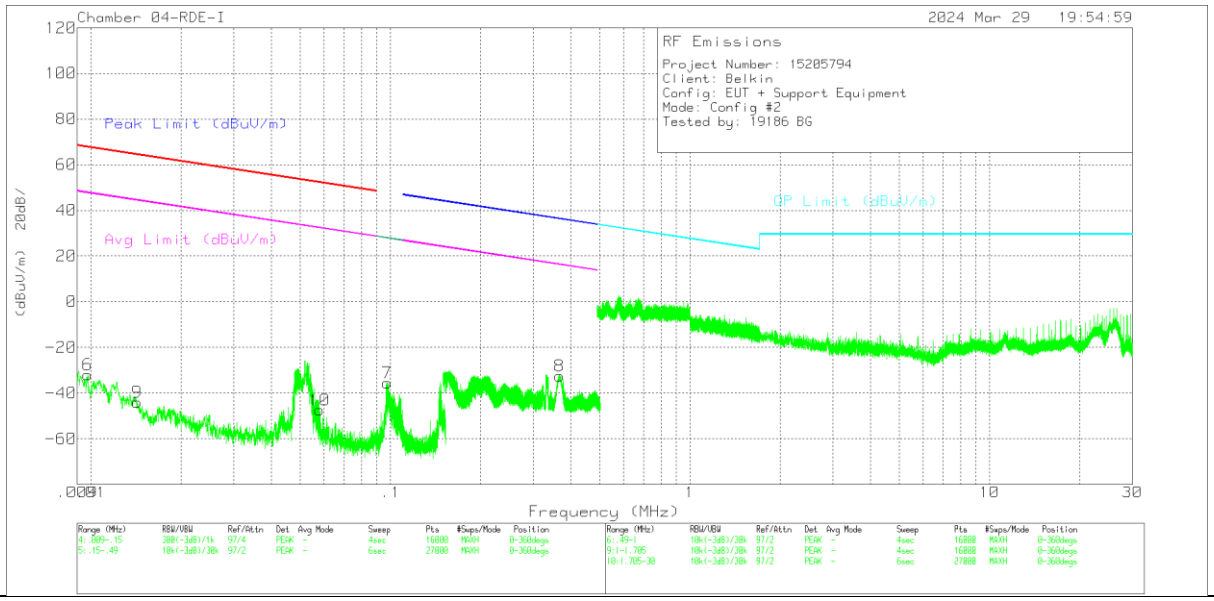
8.2.2. CONFIGURATION 2: OPERATING MODE WITH iPhone (360kHz)





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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0101	18.08	Pk	60.2	-30.1	-80	-31.82	67.48	-99.3	47.48	-79.3	-	-	0-360
2	.1032	23.93	Pk	55.5	-32.1	-80	-32.67	-	-	-	-	27.34	-60.01	0-360
3	.3673	25.66	Pk	56.1	-32	-80	-30.24	36.31	-66.55	16.31	-46.55	-	-	0-360
4	.0152	12.95	Pk	59.6	-30.9	-80	-38.35	63.93	-102.28	43.93	-82.28	-	-	0-360
5	.0605	10.53	Pk	56.1	-32.1	-80	-45.47	51.95	-97.42	31.95	-77.42	-	-	0-360
6	.0098	17.89	Pk	60.5	-30.4	-80	-32.01	67.79	-99.8	47.79	-79.8	-	-	0-360
7	.0975	20.98	Pk	55.6	-32.2	-80	-35.62	-	-	-	-	27.82	-63.44	0-360
8	.3673	23.36	Pk	56.1	-32	-80	-32.54	36.31	-68.85	16.31	-48.85	-	-	0-360
9	.0143	6.96	Pk	59.7	-30.7	-80	-44.04	64.5	-108.54	44.5	-88.54	-	-	0-360
10	.0581	8.32	Pk	56.3	-32.1	-80	-47.48	52.3	-99.78	32.3	-79.78	-	-	0-360

Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.3581	23.35	Pk	56.1	-32	-80	-32.55	36.53	-69.08	16.53	-49.08	342
8	.3607	19.8	Pk	56.1	-32	-80	-36.1	36.47	-72.57	16.47	-52.57	33

Pk - Peak detector

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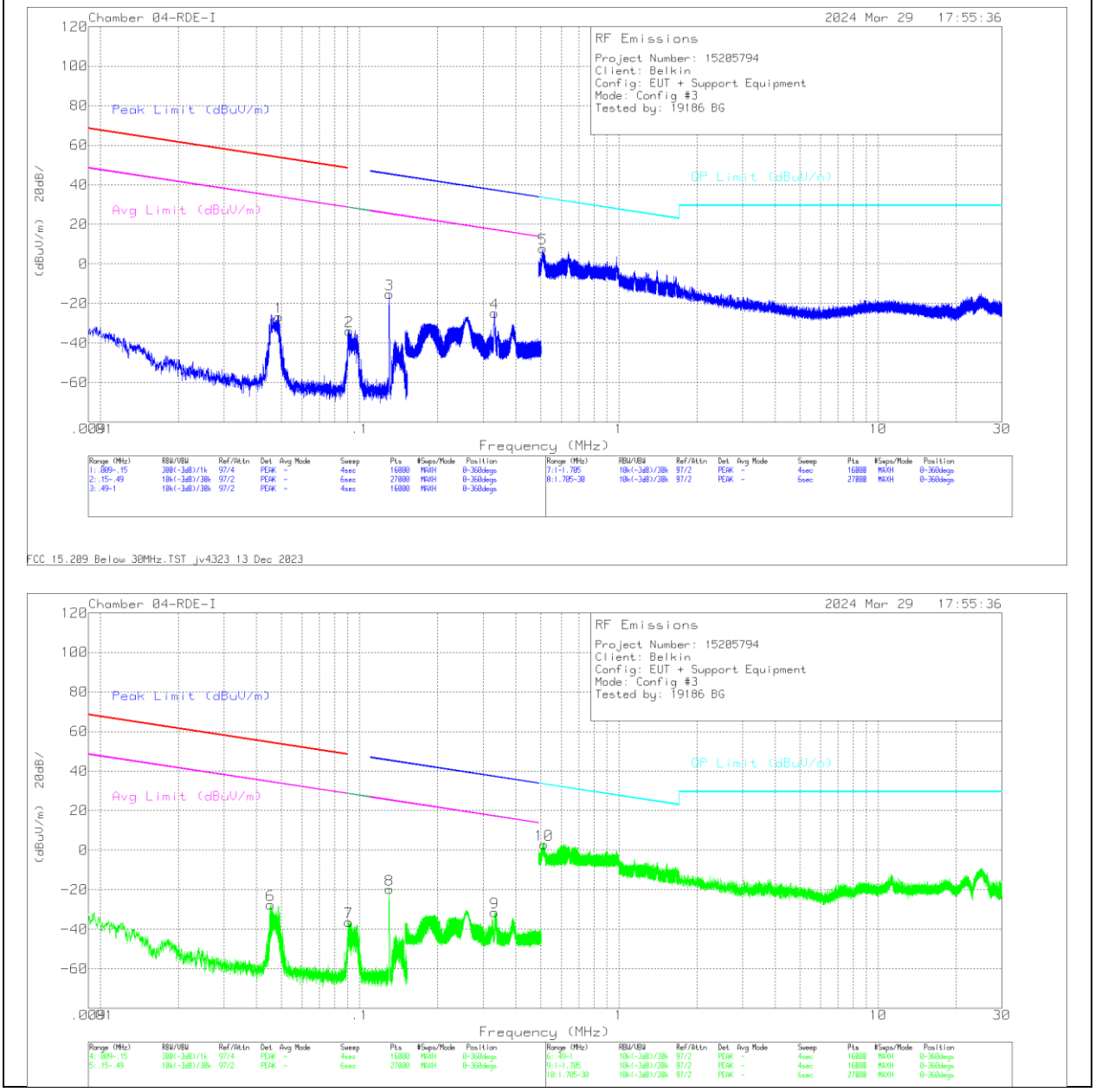
8.2.3. CONFIGURATION 3: OPERATING MODE WITH iPhone (127.7kHz)



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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0488	28.38	Pk	57	-32.1	-80	-	-26.72	53.82	-80.54	33.82	-60.54	-	-	0-360
2	.091	22.79	Pk	55.7	-32.3	-80	-	-33.81	-	-	-	-	28.4	-62.21	0-360
3	.1302	41.14	Pk	55.7	-32	-80	-	-15.16	45.33	-60.49	25.33	-40.49	-	-	0-360
4	.3312	31.24	Pk	56.1	-32.1	-80	-	-24.76	37.21	-61.97	17.21	-41.97	-	-	0-360
5	.5103	23.58	Pk	56.1	-31.9	-	-40	7.78	-	-	-	-	33.45	-25.67	0-360
6	.0454	27.33	Pk	57.1	-32.1	-80	-	-27.67	54.44	-82.11	34.44	-62.11	-	-	0-360
7	.091	20.21	Pk	55.7	-32.3	-80	-	-36.39	-	-	-	-	28.41	-64.8	0-360
8	.1302	36.51	Pk	55.7	-32	-80	-	-19.79	45.33	-65.12	25.33	-45.12	-	-	0-360
9	.3317	24.63	Pk	56.1	-32.1	-80	-	-31.37	37.19	-68.56	17.19	-48.56	-	-	0-360
10	.5143	18.69	Pk	56.1	-31.9	-	-40	2.89	-	-	-	-	33.38	-30.49	0-360

Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.1277	41.49	Pk	55.7	-32	-80	-14.81	45.5	-60.31	25.5	-40.31	186
8	.1277	37.18	Pk	55.7	-32	-80	-19.12	45.5	-64.62	25.5	-44.62	275

Pk - Peak detector

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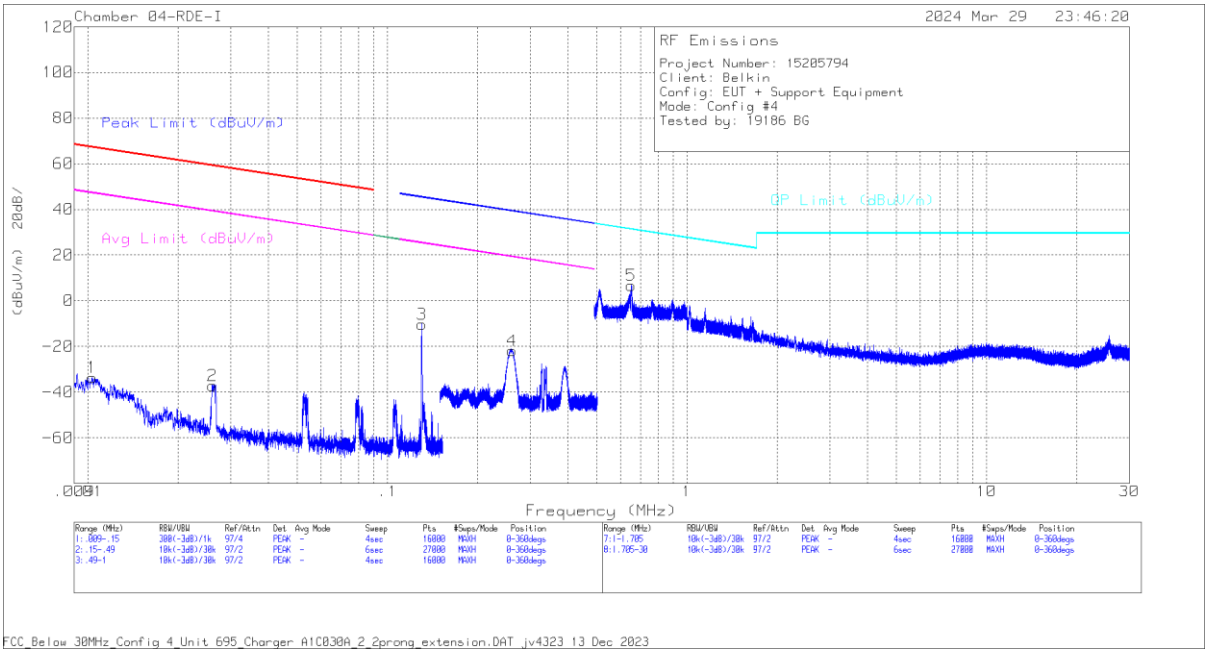
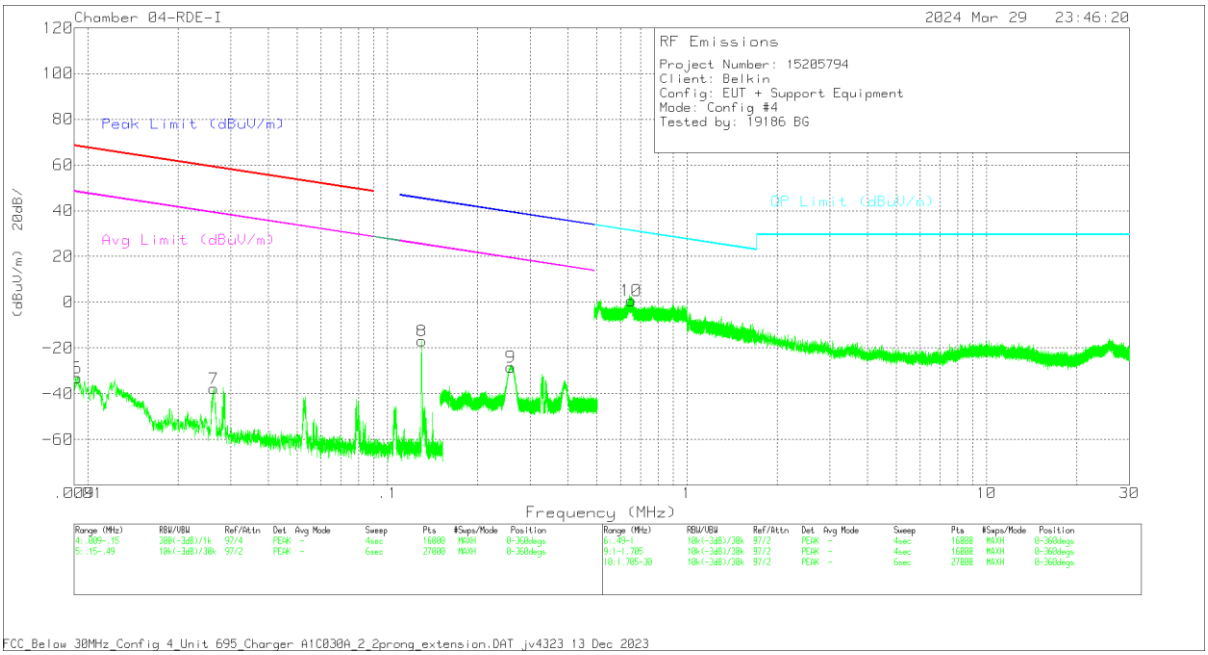
8.2.4. CONFIGURATION 4: OPERATING MODE WITH AirPods Pro Case (127.7kHz)





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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0103	16.32	Pk	60.2	-30.1	-80	-	-33.58	67.31	-100.89	47.31	-80.89	-	-	0-360
2	.026	16.29	Pk	58.3	-31.8	-80	-	-37.21	59.28	-96.49	39.28	-76.49	-	-	0-360
3	.1302	45.95	Pk	55.7	-32	-80	-	-10.35	45.33	-55.68	25.33	-35.68	-	-	0-360
4	.2603	34.04	Pk	56.1	-32.1	-80	-	-21.96	39.3	-61.26	19.3	-41.26	-	-	0-360
5	.6523	22.5	Pk	56.1	-32	-	-40	6.6	-	-	-	-	31.32	-24.72	0-360
6	.0092	17.04	Pk	61	-31.2	-80	-	-33.16	68.3	-101.46	48.3	-81.46	-	-	0-360
7	.0264	15.62	Pk	58.3	-31.8	-80	-	-37.88	59.16	-97.04	39.16	-77.04	-	-	0-360
8	.1302	39.28	Pk	55.7	-32	-80	-	-17.02	45.33	-62.35	25.33	-42.35	-	-	0-360
9	.2585	27.54	Pk	56.1	-32.1	-80	-	-28.46	39.36	-67.82	19.36	-47.82	-	-	0-360
10	.6518	16.64	Pk	56.1	-32	-	-40	.74	-	-	-	-	31.33	-30.59	0-360

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
.1277	46.26	Pk	55.7	-32	-80	-10.04	45.5	-55.54	25.5	-35.54	137
.1277	39.37	Pk	55.7	-32	-80	-16.93	45.5	-62.43	25.5	-42.43	42

Pk - Peak detector

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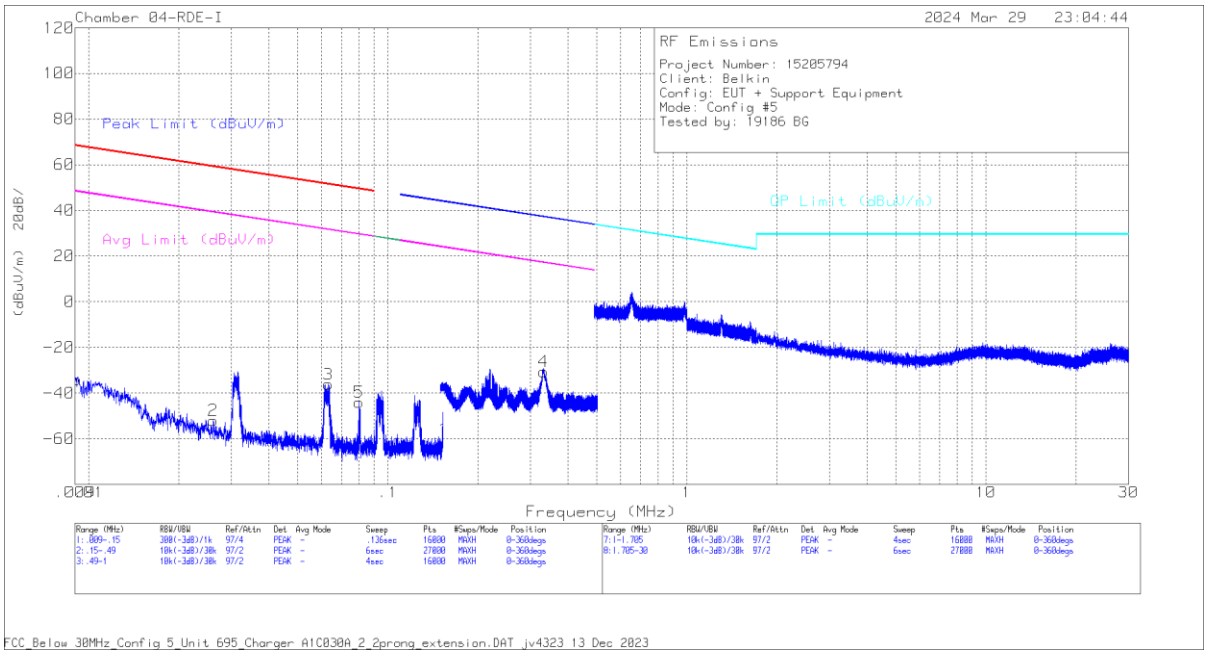
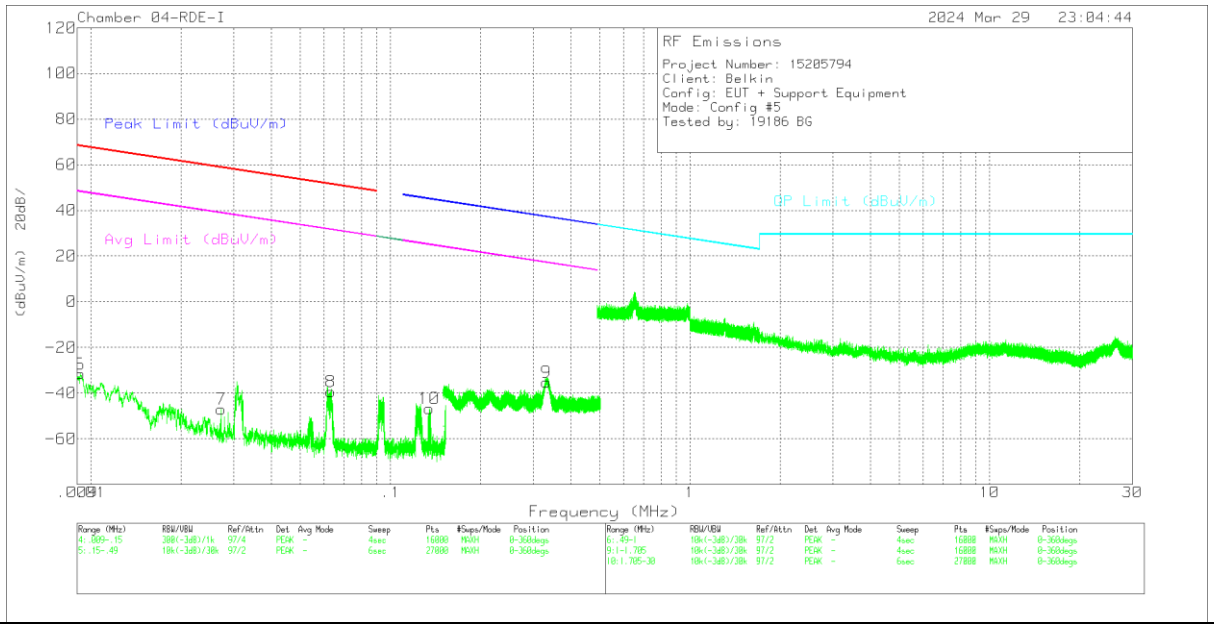
8.2.5. CONFIGURATION 5: OPERATING MODE WITH Apple Watch (326.5kHz)





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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0091	16.11	Pk	61.1	-31.3	-80	-34.09	68.42	-102.51	48.42	-82.51	0-360
2	.0261	1.58	Pk	58.3	-31.8	-80	-51.92	59.25	-111.17	39.25	-91.17	0-360
3	.0633	19.86	Pk	56	-32.1	-80	-36.24	51.55	-87.79	31.55	-67.79	0-360
4	.3314	25.39	Pk	56.1	-32.1	-80	-30.61	37.2	-67.81	17.2	-47.81	0-360
5	.0802	12.6	Pk	55.6	-32.3	-80	-44.1	49.5	-93.6	29.5	-73.6	0-360
6	.0092	18.61	Pk	61	-31.2	-80	-31.59	68.3	-99.89	48.3	-79.89	0-360
7	.0272	6.44	Pk	58.2	-31.8	-80	-47.16	58.89	-106.05	38.89	-86.05	0-360
8	.0633	16.73	Pk	56	-32.1	-80	-39.37	51.55	-90.92	31.55	-70.92	0-360
9	.3313	20.81	Pk	56.1	-32.1	-80	-35.19	37.21	-72.4	17.21	-52.4	0-360
10	.1347	9.67	Pk	55.7	-32.1	-80	-46.73	45.04	-91.77	25.04	-71.77	0-360

Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
4	.3249	21.79	Pk	56.1	-32.1	-80	-34.21	37.38	-71.59	17.38	-51.59	218
9	.3263	21.7	Pk	56.1	-32.1	-80	-34.3	37.34	-71.64	17.34	-51.64	151

Pk - Peak detector

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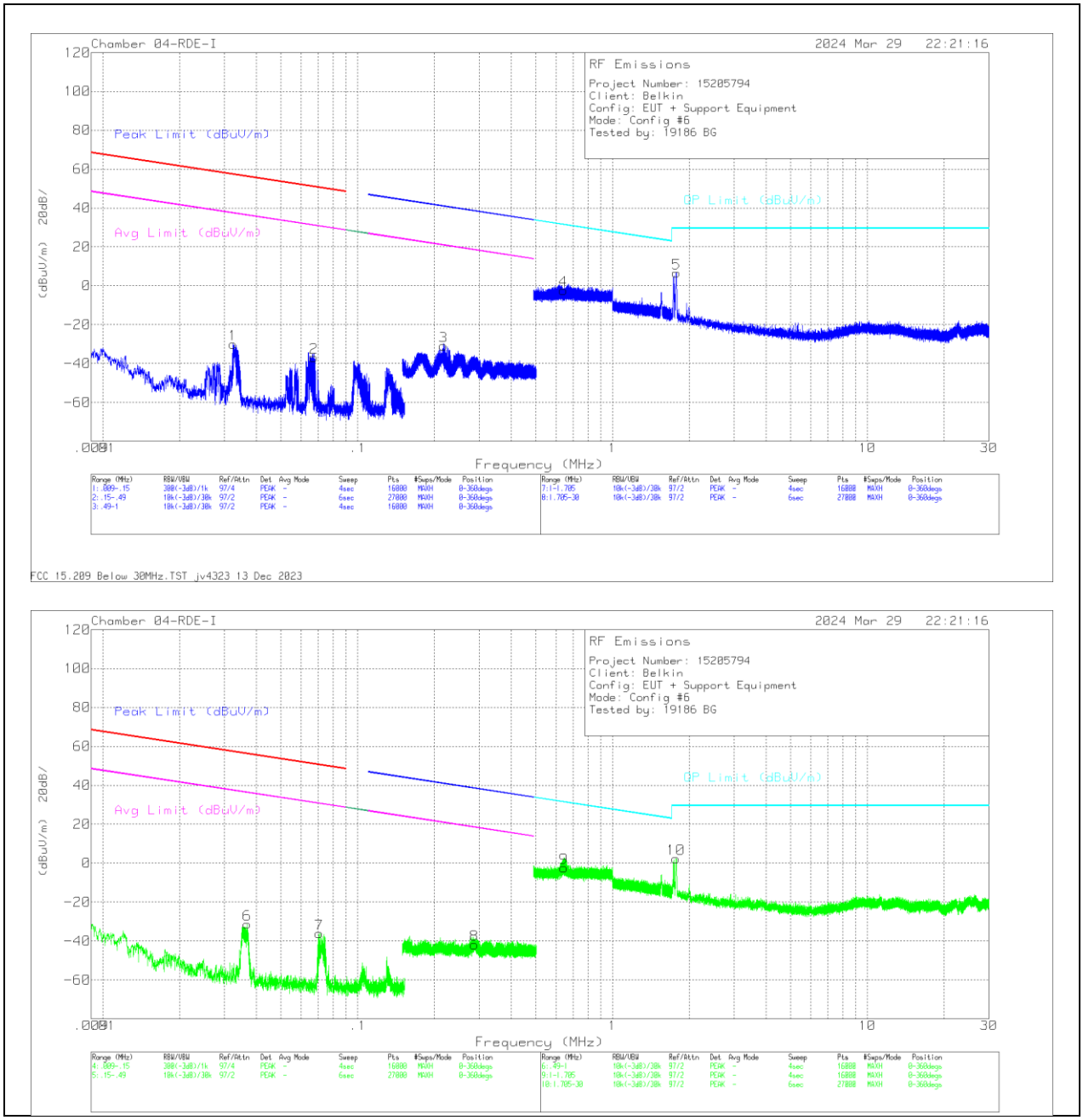
8.2.6. CONFIGURATION 6: OPERATING MODE WITH Apple Watch (1.778MHz)



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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0325	24.24	Pk	57.7	-32	-80	-	-30.06	57.36	-87.42	37.36	-67.42	-	-	0-360
2	.0674	19.36	Pk	55.9	-32.1	-80	-	-36.84	51.01	-87.85	31.01	-67.85	-	-	0-360
3	.2171	24.87	Pk	56.1	-32	-80	-	-31.03	40.88	-71.91	20.88	-51.91	-	-	0-360
4	.6428	13.47	Pk	56.1	-32	-	-40	-2.43	-	-	-	-	31.45	-33.88	0-360
5	1.7784	35.85	Pk	42.6	-31.9	-	-40	6.55	-	-	-	-	29.5	-22.95	0-360
6	.0369	23.48	Pk	57.3	-32.1	-80	-	-31.32	56.24	-87.56	36.24	-67.56	-	-	0-360
7	.0707	19.96	Pk	55.9	-32.1	-80	-	-36.24	50.6	-86.84	30.6	-66.84	-	-	0-360
8	.287	14.14	Pk	56.1	-32.1	-80	-	-41.86	38.45	-80.31	18.45	-60.31	-	-	0-360
9	.6461	13.51	Pk	56.1	-32	-	-40	-2.39	-	-	-	-	31.4	-33.79	0-360
10	1.7773	31.59	Pk	42.6	-31.9	-	-40	2.29	-	-	-	-	29.5	-27.21	0-360

Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	1.7777	35.16	Pk	42.6	-31.9	-40	5.86	29.5	-23.64	-	-	-	-	195
10	1.7779	32.43	Pk	42.6	-31.9	-40	3.13	29.5	-26.37	-	-	-	-	118

Pk - Peak detector

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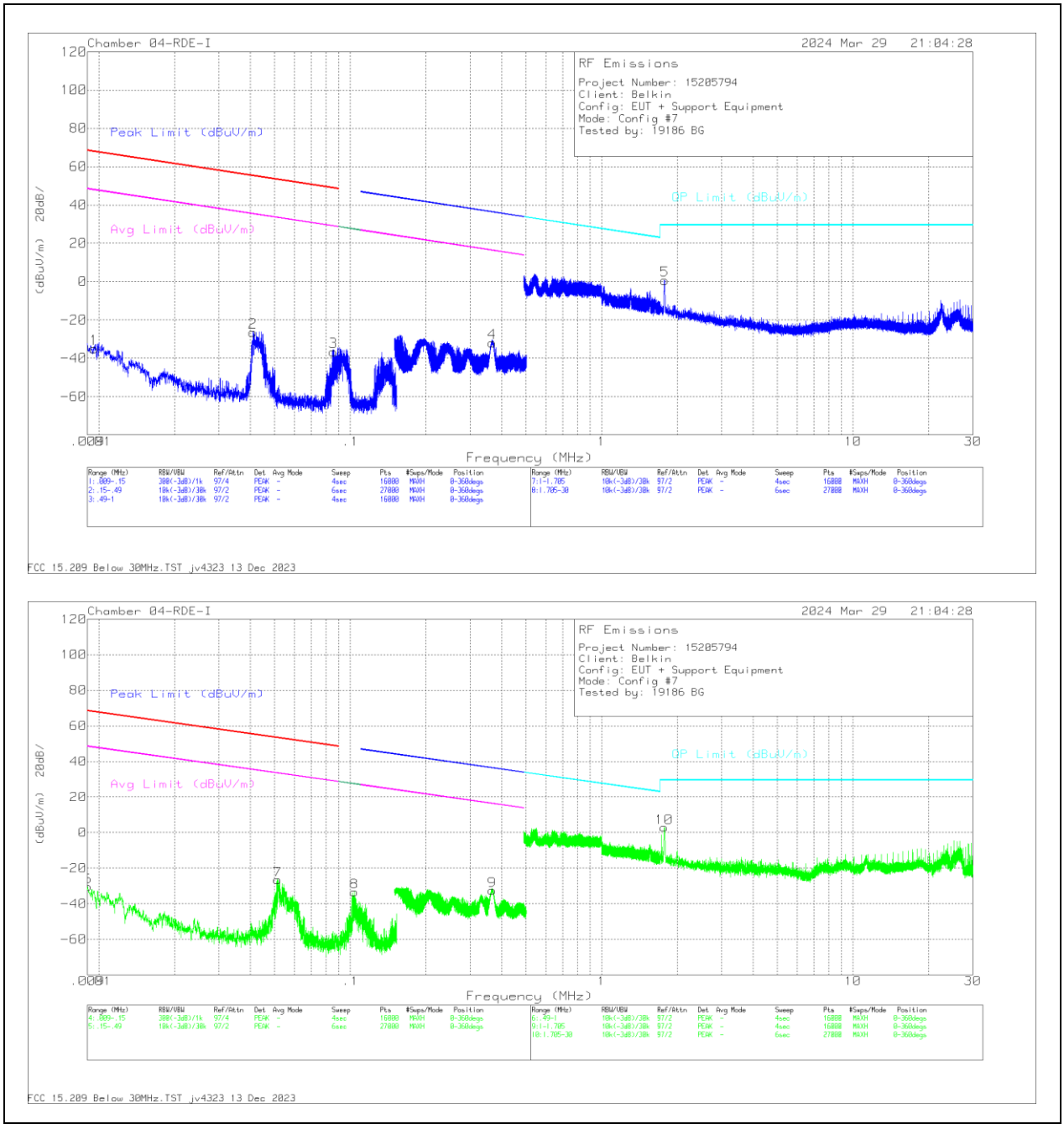
8.2.7. CONFIGURATION 7: OPERATING MODE WITH AirPods (127.7kHz) + Apple Watch (1.778MHz)



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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0096	15.17	Pk	60.6	-30.7	-80	-	-34.93	67.95	-102.88	47.95	-82.88	-	-	0-360
2	.0411	28.51	Pk	57.1	-32.2	-80	-	-26.59	55.31	-81.9	35.31	-61.9	-	-	0-360
3	.0856	19.85	Pk	55.7	-32.3	-80	-	-36.75	48.94	-85.69	28.94	-65.69	-	-	0-360
4	.3675	23.89	Pk	56.1	-32	-80	-	-32.01	36.3	-68.31	16.3	-48.31	-	-	0-360
5	1.7784	29.99	Pk	42.6	-31.9	-	-40	.69	-	-	-	-	29.5	-28.81	0-360
6	.009	19.84	Pk	61.2	-31.4	-80	-	-30.36	68.47	-98.83	48.47	-78.83	-	-	0-360
7	.0514	28.47	Pk	56.9	-32	-80	-	-26.63	53.36	-79.99	33.36	-59.99	-	-	0-360
8	.104	23.22	Pk	55.5	-32.1	-80	-	-33.38	-	-	-	-	27.27	-60.65	0-360
9	.3664	23.35	Pk	56.1	-32	-80	-	-32.55	36.33	-68.88	16.33	-48.88	-	-	0-360
10	1.7773	32.27	Pk	42.6	-31.9	-	-40	2.97	-	-	-	-	29.5	-26.53	0-360

Pk - Peak detector

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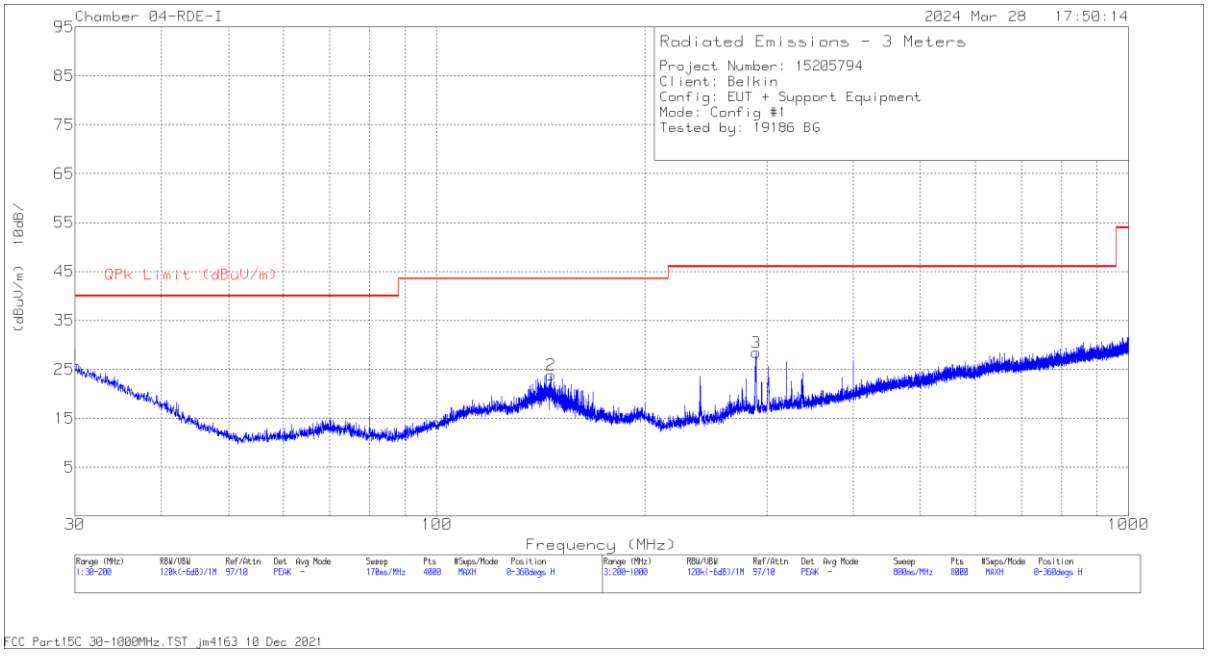
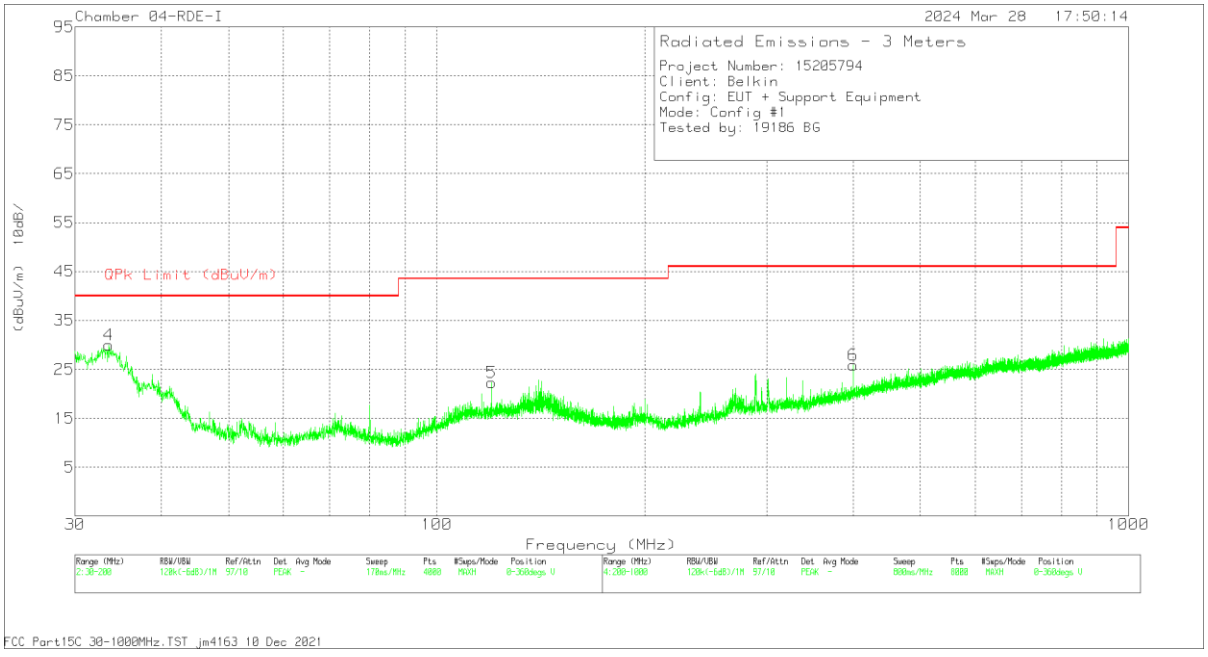
8.3. FCC TX SPURIOUS EMISSION 30 TO 1000 MHz

8.3.1. CONFIGURATION 1: WPT ON STANDBY (326.5kHz)

HORIZONTAL PLOT



VERTICAL PLOT



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DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80714 ACF (dB) - 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.1275	29.43	Pk	27.6	-31.3	25.73	40	-14.27	0-360	199	H
2	146.268	35.77	Pk	18.5	-30.4	23.87	43.52	-19.65	0-360	199	H
3	289.512	39.1	Pk	19	-29.7	28.4	46.02	-17.62	0-360	101	H
4	33.5709	35.95	Pk	25.2	-31.2	29.95	40	-10.05	0-360	101	V
5	* 119.996	33.43	Pk	19.5	-30.6	22.33	43.52	-21.19	0-360	101	V
6	* 399.926	34.02	Pk	21.3	-29.4	25.92	46.02	-20.1	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector

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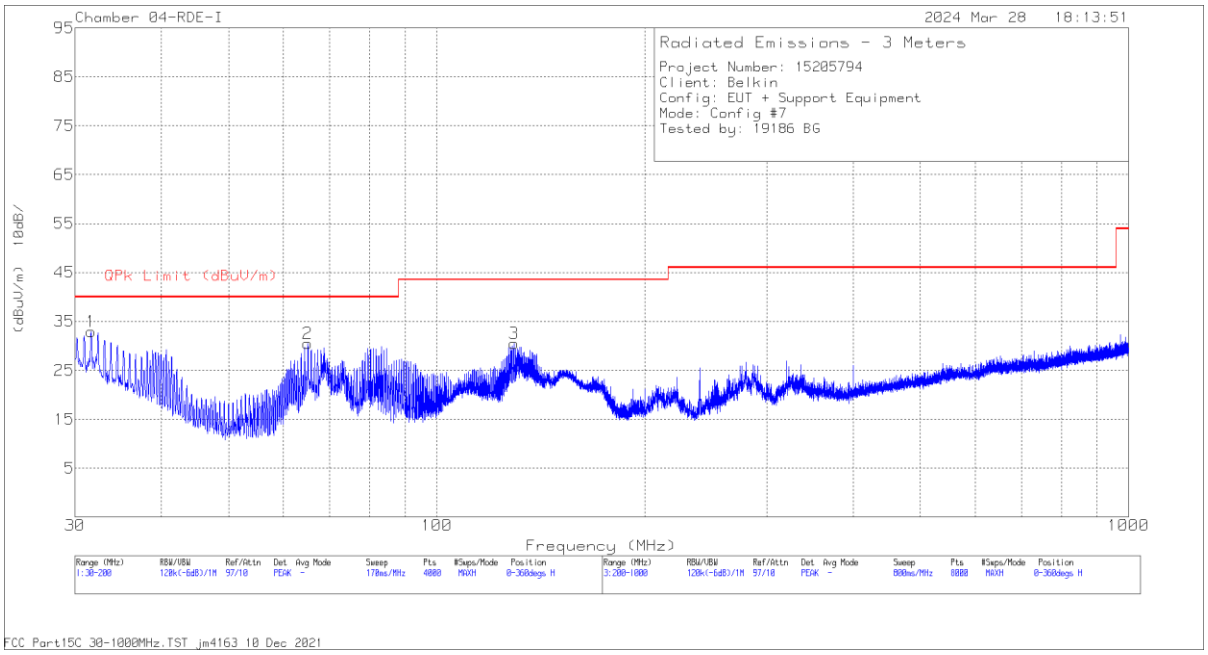
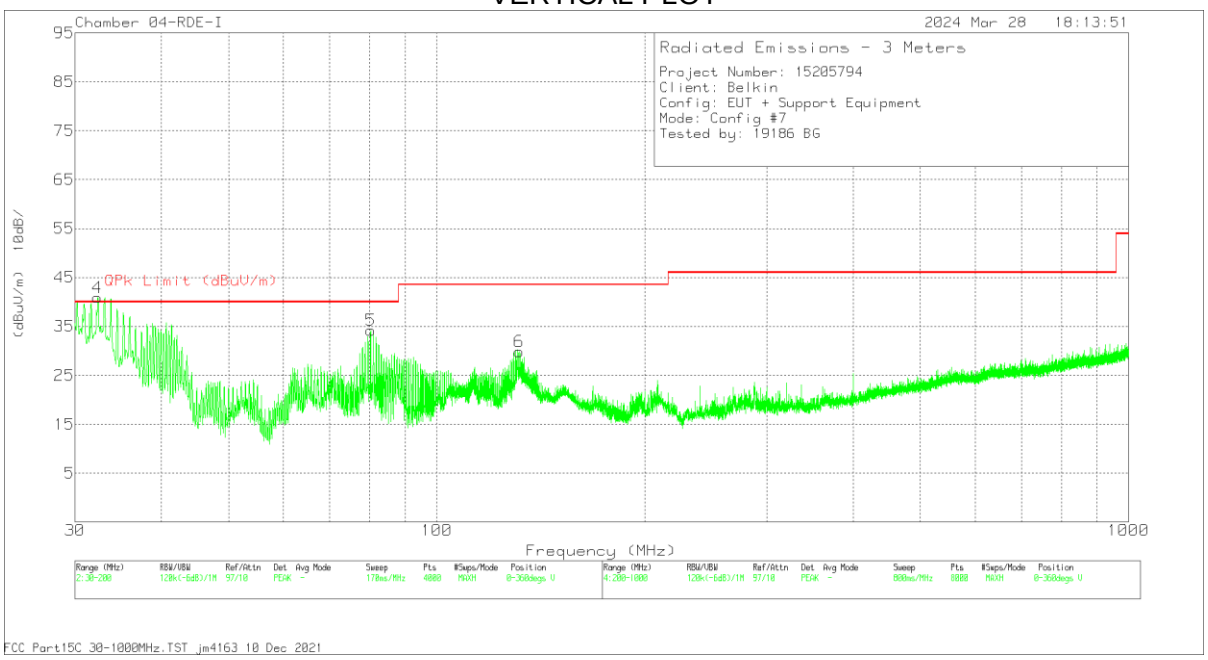
8.3.2. CONFIGURATION 7: OPERATING MODE WITH AirPods (360kHz) + Apple Watch (1.778MHz)

HORIZONTAL PLOT



VERTICAL PLOT



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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80714 ACF (dB) - 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.6579	37.65	Pk	26.6	-31.3	32.95	40	-7.05	0-360	299	H
2	65.1141	46.9	Pk	14.5	-30.9	30.5	40	-9.5	0-360	299	H
3	* 129.391	41.53	Pk	19.5	-30.5	30.53	43.52	-12.99	0-360	199	H
4	32.3768	44.23	Pk	26.1	-31.2	39.13	40	-.87	336	105	V
	32.3768	41.83	Qp	26.1	-31.2	36.73	40	-3.27	336	105	
5	80.2485	46.86	Pk	14.1	-30.8	30.16	40	-9.84	270	116	V
	80.2485	45.39	Qp	14.1	-30.8	28.69	40	-11.31	270	116	
6	* 131.516	41.02	Pk	19.4	-30.5	29.92	43.52	-13.6	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Qp - Quasi-Peak detector

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9. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

ICES-001 Issue 5 Table 1

Table 1: Conducted emission limits for induction cooking appliances (AC mains terminals)				
Frequency range (MHz)	Appliances rated 120 V, without an earth connection Quasi-peak (dBµV)	Appliances rated 120 V, without an earth connection Average (dBµV)	All other appliances Quasi-peak (dBµV)	All other appliances Average (dBµV)
0.009 – 0.05	122	—	110	—
0.05 – 0.15	102 to 92 *	—	90 to 80 *	—
0.15 – 0.5	72 to 62 *	62 to 52 *	66 to 56 *	56 to 46 *
0.5 – 5	56	46	56	46
5 – 30	60	50	60	50
Note: The more stringent limit applies at transition frequencies. *The limit level in dBµV decreases linearly with the logarithm of frequency.				

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 200Hz for below 150kHz, 9kHz for 150kHz to 30MHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

Testing ranges from 9kHz to 30MHz using ICES-001 Issue Table 1 “All other appliances” limit to cover both FCC and ISED frequency range.

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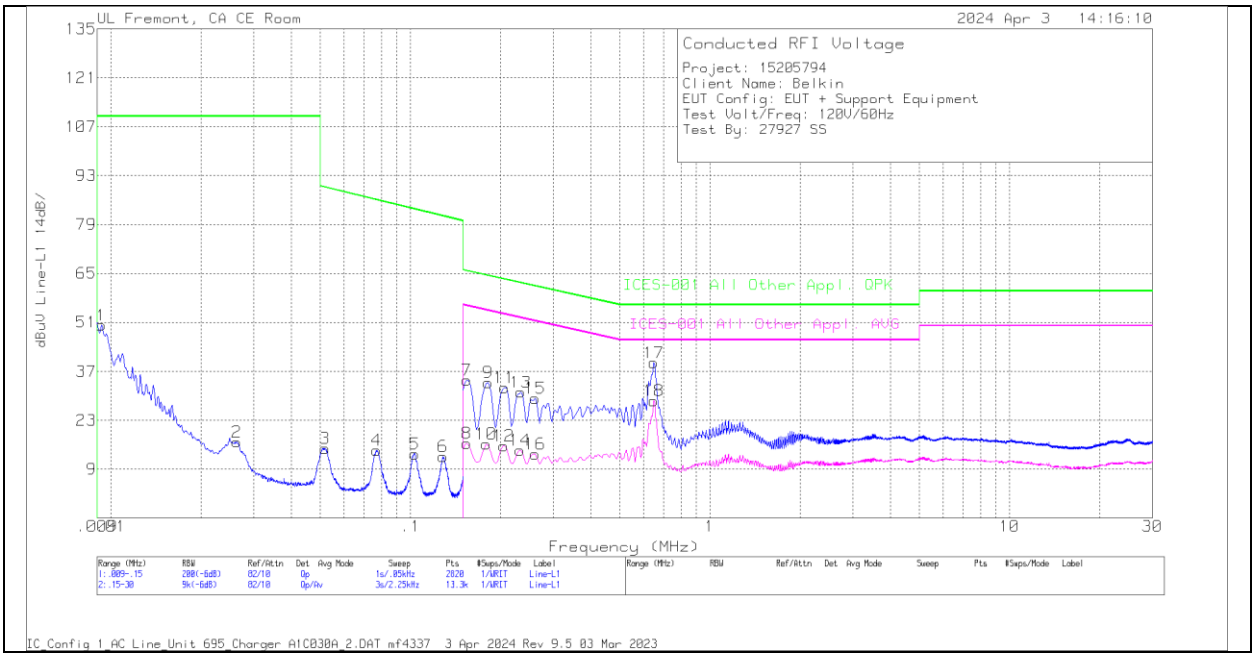
9.1. CONFIGURATION 1: WPT ON STANDBY

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .009 - .15MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
1	.0093	20.38	Qp	4.9	-.1	15	10	50.18	110	-59.82	-	-
2	.0263	-5.16	Qp	1.1	.1	10.8	10	16.84	110	-93.16	-	-
3	.0518	-5.39	Qp	.4	0	10	10	15.01	89.68	-74.67	-	-
4	.077	-5.45	Qp	.2	0	9.7	10	14.45	86.08	-71.63	-	-
5	.1035	-6.35	Qp	.1	0	9.6	10	13.35	83.38	-70.03	-	-
6	.1286	-7.13	Qp	.1	.1	9.5	10	12.57	81.4	-68.83	-	-

Range 2: Line-L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
8	.1545	-3.27	Av	.1	0	9.5	10	16.33	-	-	55.75	-39.42
10	.1793	-3.39	Av	.1	.1	9.4	10	16.21	-	-	54.52	-38.31
12	.2051	-3.76	Av	0	.1	9.4	10	15.74	-	-	53.4	-37.66
14	.2321	-4.96	Av	0	0	9.4	10	14.44	-	-	52.37	-37.93
16	.2603	-6.03	Av	0	0	9.4	10	13.37	-	-	51.42	-38.05
18	.6495	9.15	Av	0	.1	9.4	10	28.65	-	-	46	-17.35
7	.1545	14.85	Qp	.1	0	9.5	10	34.45	65.75	-31.3	-	-
9	.1815	14.19	Qp	.1	.1	9.4	10	33.79	64.42	-30.63	-	-
11	.2063	12.89	Qp	0	.1	9.4	10	32.39	63.35	-30.96	-	-
13	.2333	11.62	Qp	0	0	9.4	10	31.02	62.33	-31.31	-	-
15	.2603	9.96	Qp	0	0	9.4	10	29.36	61.42	-32.06	-	-
17	.6495	19.94	Qp	0	.1	9.4	10	39.44	56	-16.56	-	-

Qp - Quasi-Peak detector
Av - Average detection

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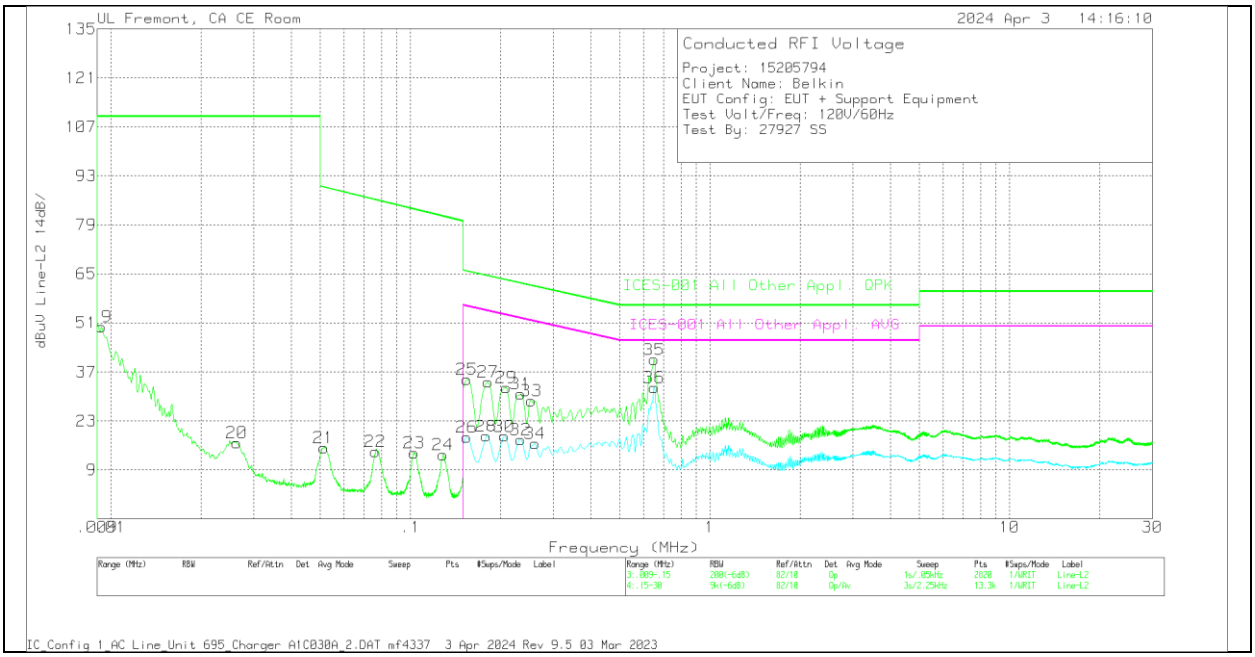
LINE 2 RESULTS



WORST EMISSIONS

Range 3: Line-L2 .009 - .15MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
19	.0093	19.97	Qp	4.9	0	15	10	49.87	110	-60.13	-	-
20	.0264	-5.14	Qp	1	.1	10.8	10	16.76	110	-93.24	-	-
21	.0513	-4.97	Qp	.3	0	10	10	15.33	89.77	-74.44	-	-
22	.0765	-5.6	Qp	.2	0	9.7	10	14.3	86.13	-71.83	-	-
23	.103	-5.76	Qp	.1	0	9.6	10	13.94	83.42	-69.48	-	-
24	.1285	-6.36	Qp	.1	.1	9.5	10	13.34	81.41	-68.07	-	-

Range 4: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
26	.1545	-1.2	Av	.1	0	9.5	10	18.4	-	-	55.75	-37.35
28	.1793	-.85	Av	0	.1	9.4	10	18.65	-	-	54.52	-35.87
30	.2063	-.86	Av	0	.1	9.4	10	18.64	-	-	53.35	-34.71
32	.2333	-1.69	Av	0	0	9.4	10	17.71	-	-	52.33	-34.62
34	.2603	-2.83	Av	0	0	9.4	10	16.57	-	-	51.42	-34.85
36	.6518	13.08	Av	0	.1	9.4	10	32.58	-	-	46	-13.42
25	.1545	15.24	Qp	.1	0	9.5	10	34.84	65.75	-30.91	-	-
27	.1815	14.6	Qp	0	.1	9.4	10	34.1	64.42	-30.32	-	-
29	.2085	13.05	Qp	0	.1	9.4	10	32.55	63.26	-30.71	-	-
31	.2333	11.29	Qp	0	0	9.4	10	30.69	62.33	-31.64	-	-
33	.2535	9.37	Qp	0	0	9.4	10	28.77	61.64	-32.87	-	-
35	.6518	21	Qp	0	.1	9.4	10	40.5	56	-15.5	-	-

Qp - Quasi-Peak detector
Av - Average detection

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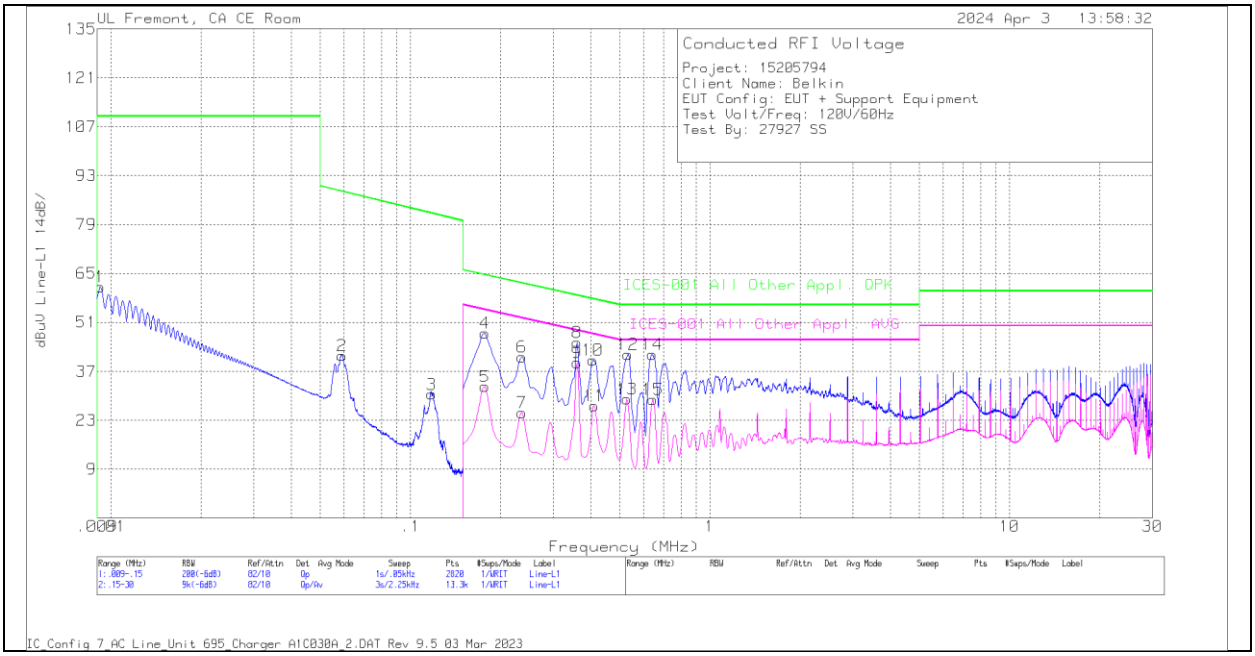
9.2. CONFIGURATION 7: OPERATING MODE WITH AirPods (127.7kHz) + Apple Watch (1.778MHz)

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .009 - .15MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
1	.0092	31.1	Qp	4.9	-.1	15.3	10	61.2	110	-48.8	-	-
2	.0591	21.46	Qp	.3	0	9.8	10	41.56	88.49	-46.93	-	-
3	.1177	10.66	Qp	.1	.1	9.6	10	30.46	82.21	-51.75	-	-

Range 2: Line-L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
5	.177	13.02	Av	.1	.1	9.4	10	32.62	-	-	54.63	-22.01
7	.2355	5.72	Av	0	0	9.4	10	25.12	-	-	52.25	-27.13
9	.3593	20.15	Av	0	0	9.4	10	39.55	-	-	48.75	-9.2
11	.411	7.79	Av	0	0	9.4	10	27.19	-	-	47.63	-20.44
13	.528	9.65	Av	0	.1	9.3	10	29.05	-	-	46	-16.95
15	.645	9.45	Av	0	.1	9.4	10	28.95	-	-	46	-17.05
4	.177	28.27	Qp	.1	.1	9.4	10	47.87	64.63	-16.76	-	-
6	.2355	21.77	Qp	0	0	9.4	10	41.17	62.25	-21.08	-	-
8	.3593	25.87	Qp	0	0	9.4	10	45.27	58.75	-13.48	-	-
10	.4065	20.89	Qp	0	0	9.4	10	40.29	57.72	-17.43	-	-
12	.5325	22.42	Qp	0	.1	9.3	10	41.82	56	-14.18	-	-
14	.6405	22.38	Qp	0	.1	9.4	10	41.88	56	-14.12	-	-

Qp - Quasi-Peak detector
Av - Average detection

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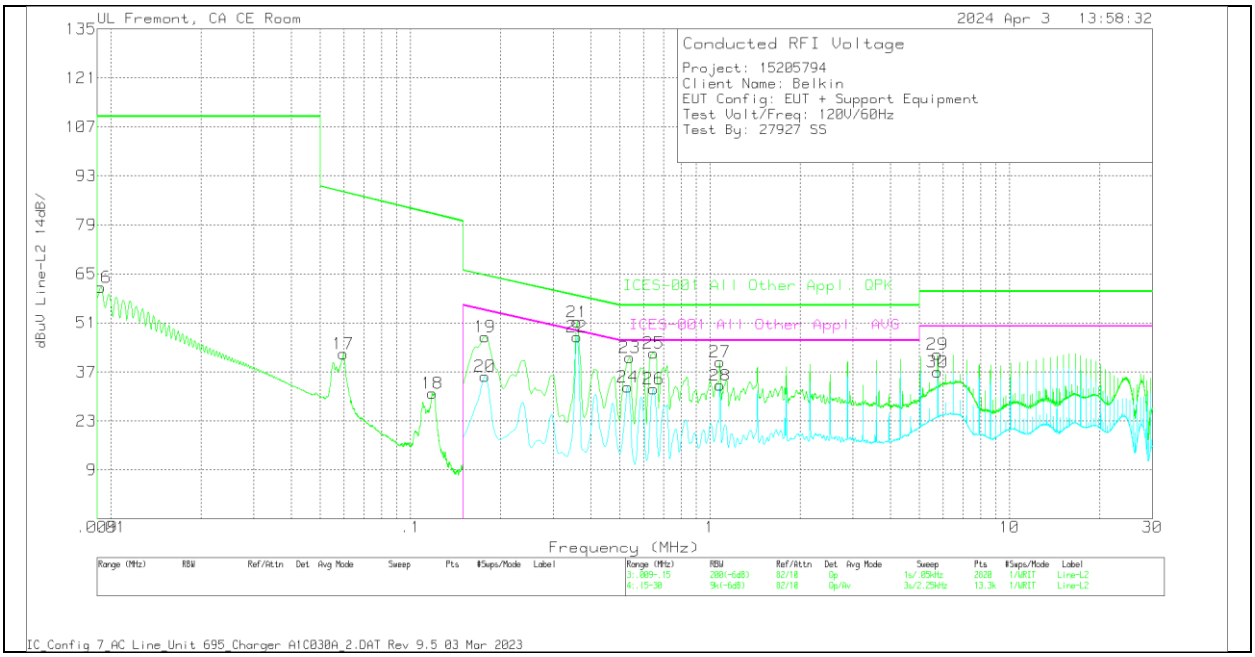
LINE 2 RESULTS



WORST EMISSIONS

Range 3: Line-L2 .009 - .15MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
16	.0093	31.26	Qp	4.9	0	15.1	10	61.26	110	-48.74	-	-
17	.0598	22.1	Qp	.3	0	9.8	10	42.2	88.38	-46.18	-	-
18	.1183	11.22	Qp	.1	0	9.6	10	30.92	82.16	-51.24	-	-

Range 4: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading dBuV	ICES-001 All Other Appl. QPK	Margin (dB)	ICES-001 All Other Appl. AVG	Margin (dB)
20	.177	16.19	Av	0	.1	9.4	10	35.69	-	-	54.63	-18.94
22	.3593	27.51	Av	0	.1	9.4	10	47.01	-	-	48.75	-1.74
24	.5325	13.44	Av	0	0	9.3	10	32.74	-	-	46	-13.26
26	.6473	12.66	Av	0	.1	9.4	10	32.16	-	-	46	-13.84
28	1.0793	13.66	Av	0	.1	9.4	10	33.16	-	-	46	-12.84
30	5.757	17.44	Av	0	.1	9.4	10	36.94	-	-	50	-13.06
19	.177	27.52	Qp	0	.1	9.4	10	47.02	64.63	-17.61	-	-
21	.3593	31.75	Qp	0	.1	9.4	10	51.25	58.75	-7.5	-	-
23	.5393	21.87	Qp	0	0	9.3	10	41.17	56	-14.83	-	-
25	.6473	22.93	Qp	0	.1	9.4	10	42.43	56	-13.57	-	-
27	1.0793	20.36	Qp	0	.1	9.4	10	39.86	56	-16.14	-	-
29	5.757	22.5	Qp	0	.1	9.4	10	42	60	-18	-	-

Qp - Quasi-Peak detector
Av - Average detection

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10. DESCRIPTION OF TEST SETUP AND SETUP PHOTOS

Please refer to 15205794-EP1 (FCC) for description of test up and setup photo.

END OF TEST REPORT

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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