

TEST REPORT

Report Number.: 13603562-E1V1

Applicant: IKEA OF SWEDEN AB

BOX 702

SE-343 81, ÄLMHULT, SWEDEN

Model : 920-00632

Brand: IKEA

FCC ID: FHO-920-00632

IC: 10912A-92000632

EUT Description: WIRELESS RADIO MODULE 802.11 a/b/g/n

Test Standard(s): FCC 47 CFR PART 15 SUBPART C

ISED RSS-247 ISSUE 2 ISED RSS-GEN ISSUE 5

Date of Issue:

March 10, 2021

Prepared by:

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	3/10/2021	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: IKEA OF SWEDEN AB

BOX 702

SE-343 81, ÄLMHULT, SWEDEN

EUT DESCRIPTION: WIRELESS RADIO MODULE 802.11 a/b/g/n

MODEL: 920-00632

BRAND: IKEA

SERIAL NUMBER: 54-2A-1B-50-0A-FC-C (RADIATED),

54-2A1B-50-0E-D8-E (CONDUCTED)

SAMPLE RECEIPT DATE: NOVEMBER 30, 2020

DATE TESTED: NOVEMBER 30, 2020 TO MARCH 09, 2021

APPLICABLE STANDARDS

STANDARD TEST RESULTS

CFR 47 Part 15 Subpart C Complies
ISED RSS-247 Issue 2 Complies
ISED RSS-GEN Issue 5 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. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For UL Verification Services Inc. By:

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2. TEST RESULTS SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting	ANSI C63.10 Section
-	RSS-GEN 6.7	99% OBW	purposes only Reporting	ANSI C63.10 Section
15.247 (a) (2)	RSS-247 5.2 (a)	6dB BW	purposes only	6.9.3. None.
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power		None.
See Comment		Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	RSS-247 5.2 (b)	PSD		None.
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions		None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions		None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions		None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, RSS-GEN Issue 5, and RSS-247 Issue 2.

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0, 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, California, USA	US0104	2324A	208313
	Building 2: 47266 Benicia Street, Fremont, California, USA	US0104	22541	208313
\boxtimes	Building 4: 47658 Kato Rd, Fremont, California, USA	US0104	2324B	208313

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. 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.

5.2. 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.)

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U_Lab
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	2.84 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB - 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

36.5 dBuV + 0 dB + 10.1 dB + 0 dB = 46.6 dBuV

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UL VERIFICATION SERVICES INC.

47173 Benicia Street, Fremont, CA 94538; USA

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6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a wireless radio module 802.11 a/b/g/n.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency	Mode	Output Power	Output Power
Range		(dBm)	(mW)
(MHz)			
2402 - 2480	BLE (1Mbps)	-2.66	0.54

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna gain(s) and type, as provided by the manufacturer, are as follows:

The radio utilizes a PIFA antenna, with a maximum gain of 6 dBi.

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was v13.1

The software used during testing was 20.0f1

6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle, and high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

This EUT supports BLE and WLAN 2.4GHz simultaneous transmission, radiated emission test was performed, please refer to 13603562-E2 for result.

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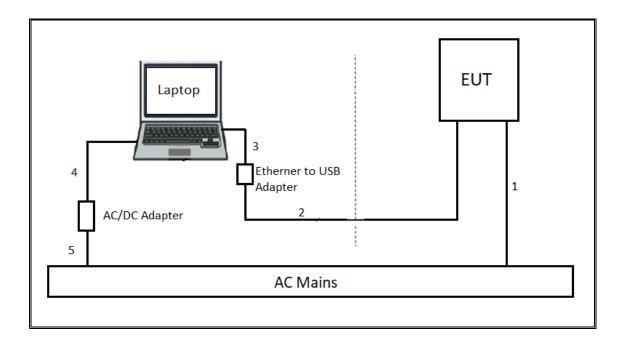
6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Des	cription	Manufacturer	Model	Serial No	umber	FCC ID/ DoC
L	aptop	Lenovo	X1 Carbon	R90HK	AZ3	PD97265NGU
AC	Adapter	Lenovo	ADLX90NLC2A	11S45N0247Z1	ZS9B599814	DoC
			I/O CAB	LES		
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC Power	1	2 Prong AC	Unshielded	3	AC Mains to EUT
2	Ethernet	1	RJ45	Unshielded	10	Ethernet to Ethernet Converter
3	Ethernet to USB	1	RJ45 to USB	Unshielded	0.2	USB to Ethernet Adapter
4	DC Power	1	DC	Unshielded	1.2	AC/DC Adapter to Laptop
5	AC Power	1	AC	Unshielded	1	AC Mains to AC/DC Adapter

TEST SETUP

The EUT connected to support laptop via the ethernet cable during testing. The test utility software on support laptop exercised the radio card. For radiated testing, the support laptop was set up outside the chamber.

SETUP DIAGRAMS



7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10 Section 11.6.

6 dB BW: ANSI C63.10 Subclause -11.8.1

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Output Power: ANSI C63.10 Subclause -11.9.1.3 Method PKPM1 Peak-reading power meter

Output Power: ANSI C63.10 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated RF average-reading power meter)

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1

Conducted emissions in restricted frequency bands: ANSI C63.10 Subclause -11.12.2

<u>Band-edge:</u> ANSI C63.10 Subclause -11.13.3.4 Trace averaging across

ON and OFF times DC correction

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

8. TEST AND MEASUREMENT EQUIPMENT

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

	TEST EQUIPMENT LIST						
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal		
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179376	04/03/2021	04/03/2020		
Amplifier, 100MHz- 18GHz	AMPLICAL	AMP0.1G18-47-20	PRE0197319	05/04/2021	05/04/2020		
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	08/31/2021	08/31/2020		
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179372	04/03/2021	04/03/2020		
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	PRE0180174	12/29/2021	12/29/2020		
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	T900	02/05/2021	02/05/2020		
Antenna Horn, 18 to 26GHz	ARA	SWH-28	T447	05/20/2021	05/20/2020		
Rf Amplifier, 18-26.5GHz, 60dB gain	AMPLICAL	AMP18G26.5-60	171590	06/07/2021	06/07/2020		
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	T1268	01/22/2021	01/22/2020		
Power Sensor, P-series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	T413	02/26/2021	02/26/2020		
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO METRICS	EM-6871	PRE0179465	07/27/2021	07/27/2020		
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO METRICS	EM-6872	PRE0179467	07/27/2021	07/27/2020		
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	T906	07/20/2021	07/20/2020		
Spectrum Analyzer, PXA, 3Hz to 50GHz	Keysight Technologies Inc	N9030A	T342	01/25/2021	01/25/2022		
		C Line Conducted					
L.I.S.N	Fischer Custom Communications, Inc	FCC-LISN-50/250- 25-2-01-480V	PRE0186446	01/21/2021	01/21/2020		
L.I.S.N	FCC INC.	FCC LISN 50/250	24	01/21/2021	01/21/2020		
EMI TEST RECEIVER	Rohde & Schwarz	ESR	T1436	02/20/2021	02/20/2020		
Transient Limiter	COM-POWER	LIT-930A	PRE0129246	01/23/2021	01/23/2020		
	TES	T SOFTWARE LIST					
Descri	ption	Manufacturer	Model		sion		
Radiated S	Software	UL	UL EMC	Ver 9.5, April 30, 2020, Oct 21, 2019			
Antenna Por	t Software	UL	UL RF	2020.10.22			
AC Line Conduc	cted Software	UL	UL EMC	Ver 9.5, Ju	uly 7, 2020		

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

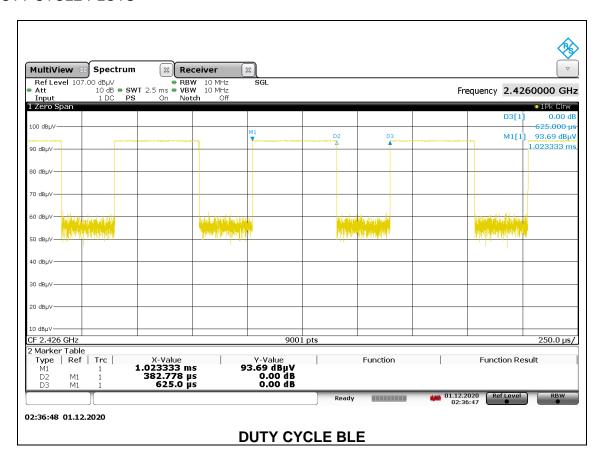
PROCEDURE

ANSI C63.10 Section 11.6 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

	В		х	•	Correction Factor	
	(msec)	(msec)	(linear)	(%)	(dB)	(kHz)
2.4GHz Band						
BLE	0.383	0.625	0.612	61.24	2.13	2.612

DUTY CYCLE PLOTS



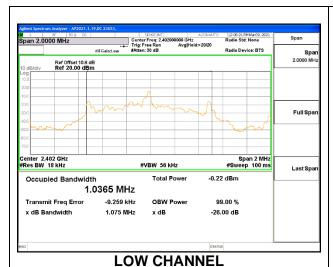
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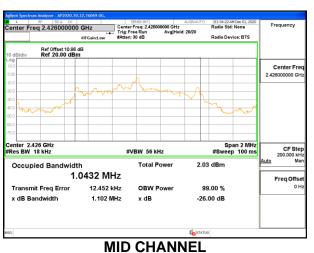
9.2. 99% BANDWIDTH

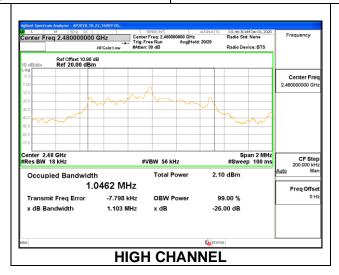
LIMITS

None; for reporting purposes only.

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0365
Middle	2426	1.0432
High	2480	1.0462







9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

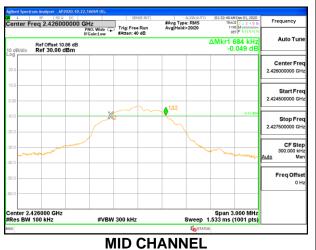
RSS-247 5.2 (a)

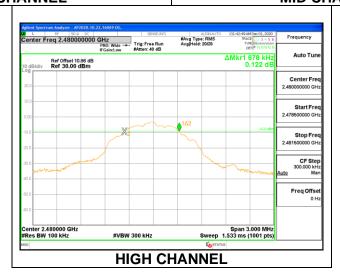
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.675	0.5
Middle	2426	0.684	0.5
High	2480	0.678	0.5







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9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband peak power sensor. Peak output power was read directly from power meter.

Tested By:	23653 DC
Date:	12/1/2020

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-2.95	30	-32.95
Middle	2426	-2.90	30	-32.90
High	2480	-2.66	30	-32.66

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

Tested By:	23653 DC
Date:	12/1/2020

Channel	Frequency	AV power
	(MHz)	(dBm)
Low	2402	-3.40
Middle	2426	-3.30
High	2480	-3.05

9.6. POWER SPECTRAL DENSITY

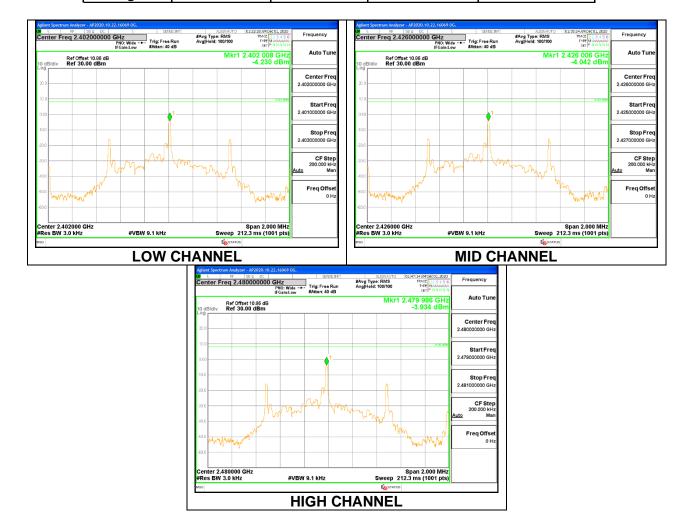
LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-4.230	8	-12.23
Middle	2426	-4.042	8	-12.04
High	2480	-3.934	8	-11.93



9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

Output power was measured based on the use of a peak measurement; therefore, the required attenuation is 20 dBc.

DATE: 3/10/2021

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10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 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.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

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.

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2D antenna use - 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

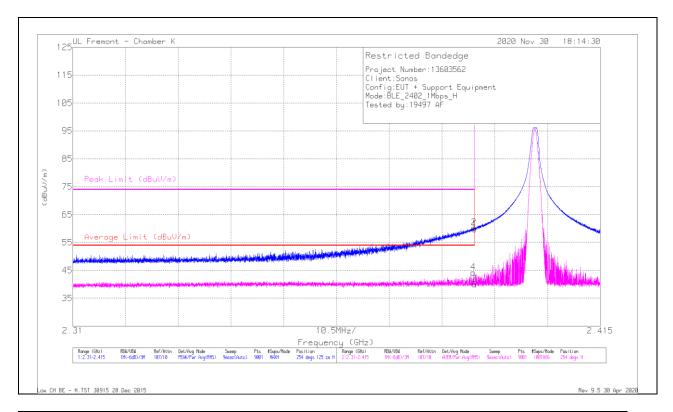
Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

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

10.2. TRANSMITTER ABOVE 1 GHz

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



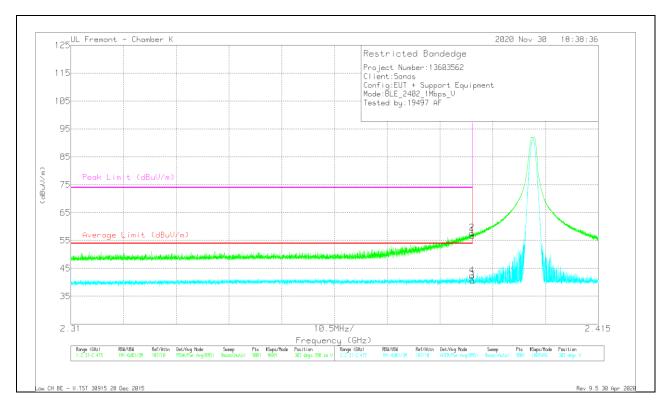
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	62.44	Pk	32.4	-35	0	59.84			74	-14.16	254	125	H
2	* 2.38984	62.92	Pk	32.4	-35	0	60.32	-		74	-13.68	254	125	Н
3	* 2.38999	40.45	RMS	32.4	-35	2.13	39.98	54	-14.02	-		254	125	Н
4	* 2.38976	44.76	RMS	32.4	-35	2.13	44.29	54	-9.71		-	254	125	Н

^{* -} indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	59.25	Pk	32.4	-35	0	56.65	-	-	74	-17.35	303	398	V
2	* 2.38984	60.25	Pk	32.4	-35	0	57.65			74	-16.35	303	398	V
3	* 2.38999	41.14	RMS	32.4	-35	2.13	40.67	54	-13.33	-		303	398	V
4	* 2.38988	42.84	RMS	32.4	-35	2.13	42.37	54	-11.63			303	398	V

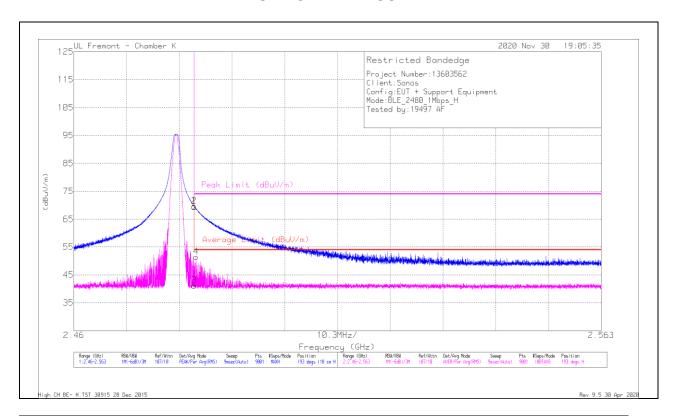
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band Pk - Peak detector RMS - RMS detection

DATE: 3/10/2021

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BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT

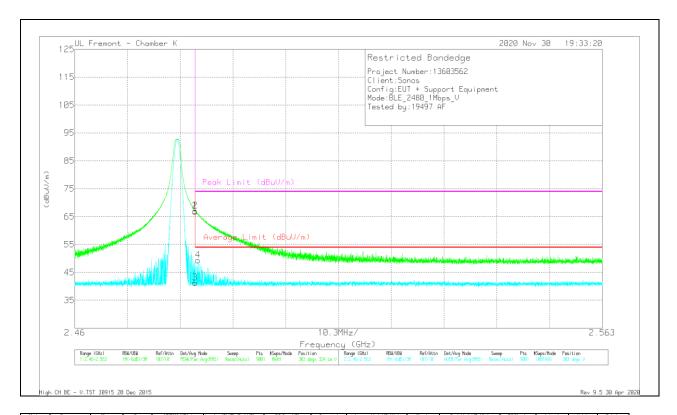


Marker	Frequency (GHz)	Meter Reading	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
	,	(dBuV)					(dBuV/m)		. ,		. ,	,	, ,	
1	* 2.48351	71.53	Pk	32.5	-34.6	0	69.43	-		74	-4.57	193	118	Н
2	* 2.48352	71.67	Pk	32.5	-34.6	0	69.57	-	-	74	-4.43	193	118	Н
3	* 2.48351	40.44	RMS	32.5	-34.6	2.13	40.47	54	-13.53		-	193	118	Н
4	* 2.4839	50.79	RMS	32.5	-34.6	2.13	50.82	54	-3.18	-		193	118	Н

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

Pk - Peak detector RMS - RMS detection

VERTICAL RESULT



Ma	irker	(GHz)	Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Reading (dBuV/m)	Average Limit (dBuV/m)	(dB)	Peak Limit (dBuV/m)	PK Margin (dB)	(Degs)	(cm)	Polarity
	1	* 2.48351	68.91	Pk	32.5	-34.6	0	66.81	-	-	74	-7.19	303	324	V
	2	* 2.48352	69.1	Pk	32.5	-34.6	0	67			74	-7	303	324	V
	3	* 2.48351	40.53	RMS	32.5	-34.6	2.13	40.56	54	-13.44			303	324	V
	4	* 2.48407	48.64	RMS	32.5	-34.6	2.13	48.67	54	-5.33			303	324	V

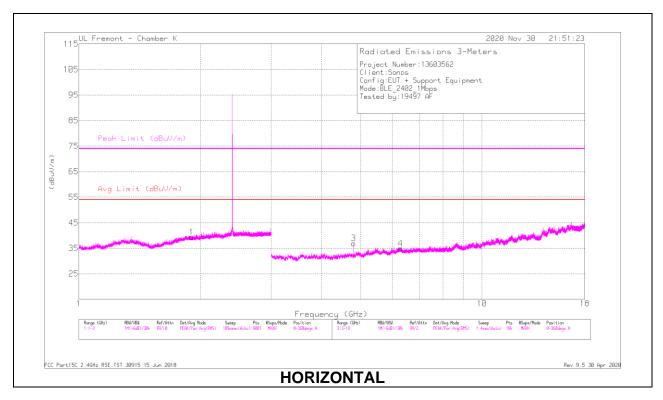
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band Pk - Peak detector RMS - RMS detection

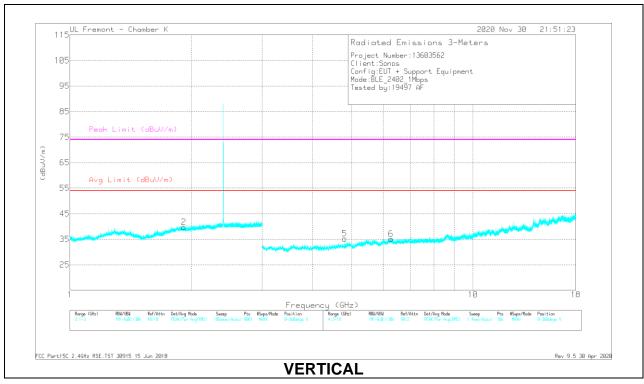
DATE: 3/10/2021

IC: 10912A-92000632

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS





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RADIATED EMISSIONS

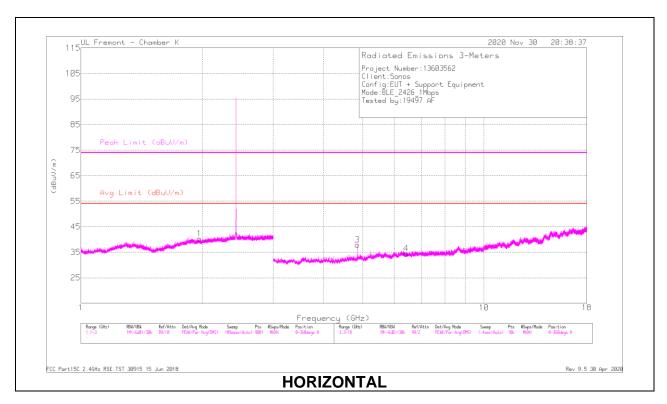
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.90615	53.73	PK2	30.9	-36.2	0	48.43	-	-	-	-	232	231	Н
4	6.27767	45.82	PK2	35.8	-39	0	42.62	-	-	-	-	7	124	Н
3	* 4.8041	49.98	PK2	34.4	-40.8	0	43.58	-	-	74	-30.42	144	164	Н
	* 4.80401	38.81	MAv1	34.4	-40.8	2.13	34.54	54	-19.46	-	-	144	164	Н
2	1.91704	52.69	PK2	30.8	-36.1	0	47.39	-	-	-	-	18	232	V
6	6.26407	46.03	PK2	35.8	-39	0	42.83	-	-	-	-	300	399	V
5	* 4.80409	48.41	PK2	34.4	-40.8	0	42.01	-	-	74	-31.99	0	138	V
	* 4.80387	36.31	MAv1	34.4	-40.8	2.13	32.04	54	-21.96		-	0	138	V

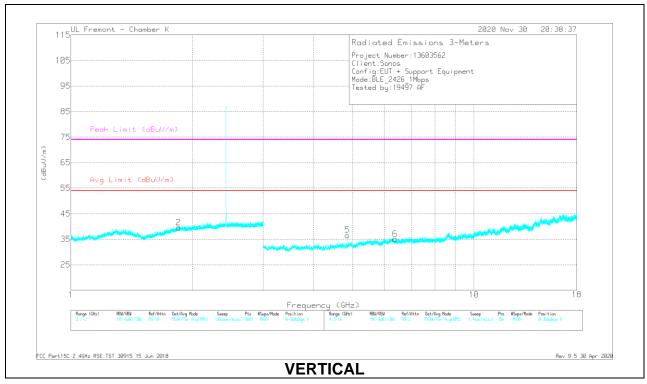
^{* -} indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS





RADIATED EMISSIONS

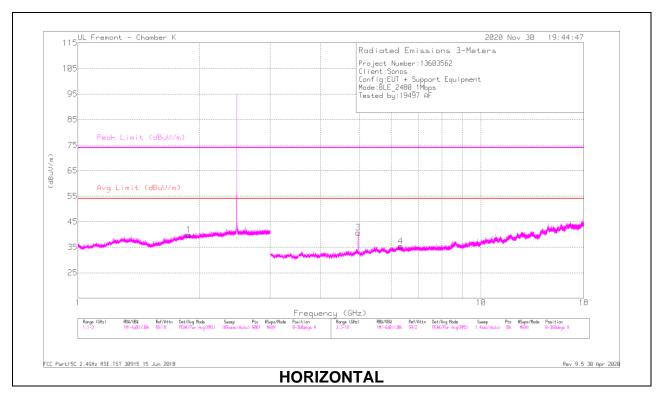
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.96675	53.27	PK2	30.9	-36	0	48.17	-	-	-	-	42	125	Н
3	* 4.85175	49.62	PK2	34.3	-40.6	0	43.32	-	-	74	-30.68	116	106	Н
	* 4.85199	39.16	MAv1	34.3	-40.6	2.13	34.99	54	-19.01	-	-	116	106	Н
4	6.4059	46.36	PK2	35.8	-39.4	0	42.76	-	-	-	-	164	227	Н
2	1.84941	53.74	PK2	30.8	-36.3	0	48.24	-	-	-	-	199	318	V
5	* 4.852	46.57	PK2	34.3	-40.6	0	40.27	-	-	74	-33.73	350	292	V
	* 4.85224	36.26	MAv1	34.3	-40.6	2.13	32.09	54	-21.91	-	-	350	292	V
6	6.3783	45.94	PK2	35.8	-39.4	0	42.34	-	-			108	329	V

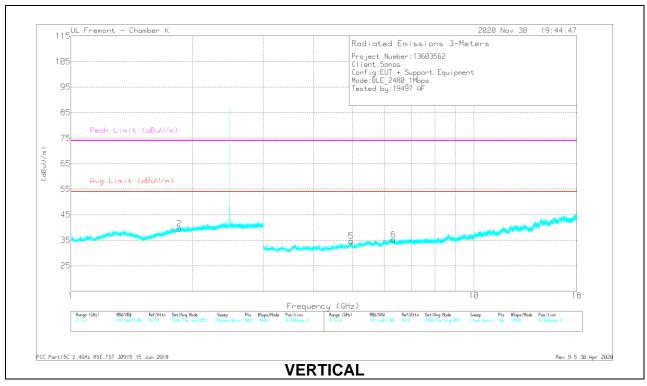
^{* -} indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS





RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.88481	52.82	PK2	31	-36.2	0	47.62	-	-	-	-	345	179	Н
4	6.32419	46.49	PK2	35.7	-39.1	0	43.09		-			137	154	Н
3	* 4.95959	50.26	PK2	34.3	-40.6	0	43.96	-	-	74	-30.04	126	405	Н
	* 4.95986	39.91	MAv1	34.3	-40.7	2.13	35.64	54	-18.36	-	-	126	405	Н
2	1.8577	53.44	PK2	30.8	-36.3	0	47.94		-			120	319	V
6	6.30897	45.89	PK2	35.8	-38.9	0	42.79	-	-	-	-	85	205	V
5	* 4.95949	49.66	PK2	34.3	-40.6	0	43.36	-	-	74	-30.64	39	354	V
	* 4.95987	38.39	MAv1	34.3	-40.7	2.13	34.12	54	-19.88			39	354	V

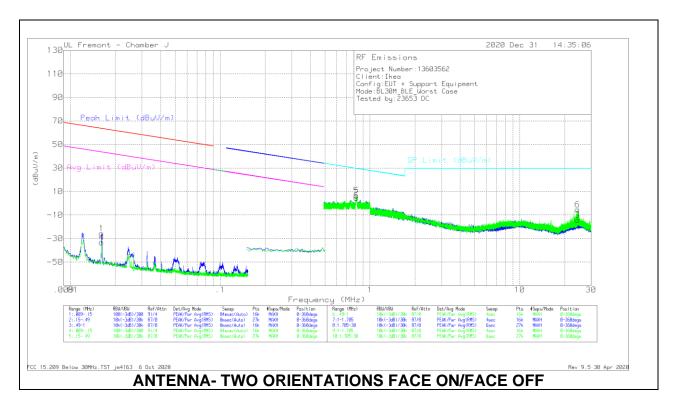
^{* -} indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

10.3. WORST CASE BELOW 30MHz

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



Below 30MHz 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	.01616	23.52	Pk	59.3	-28.5	-80	-25.68	63.42	-89.1	43.42	-69.1	0-360
4	.01614	15.97	Pk	59.3	-28.5	-80	-33.23	63.43	-96.66	43.43	-76.66	0-360

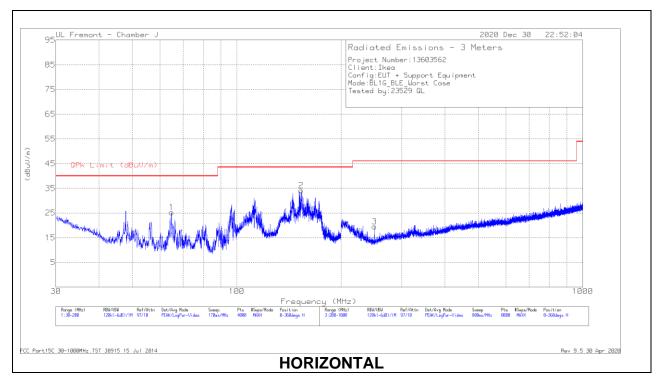
Marker	Frequency	Meter	Det	Loop Antenna (E	Amp/Cbl (dB)	Dist Corr 30m (dB)	Corrected	QP Limit (dBuV/m)	Margin	Azimuth
	(MHz)	Reading (dBuV)		ACF)		40Log	Reading (dBuV/m)		(dB)	(Degs)
2	.81229	17.19	Pk	56	-28.5	-40	4.69	29.42	-24.73	0-360
5	.81182	19.11	Pk	56	-28.5	-40	6.61	29.43	-22.82	0-360
3	24.34809	19.37	Pk	34.1	-27.7	-40	-14.23	29.5	-43.73	0-360
6	24.34914	28.19	Pk	34.1	-27.7	-40	-5.41	29.5	-34.91	0-360

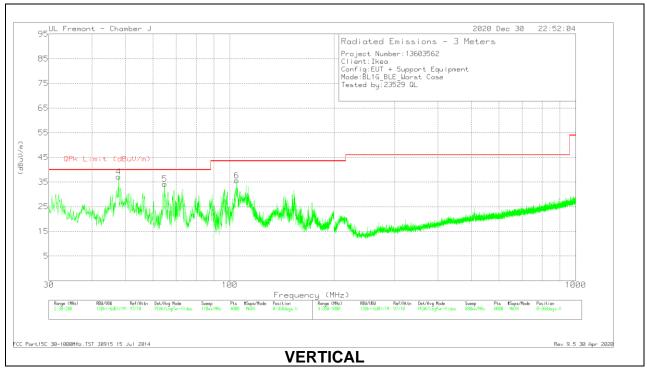
Pk - Peak detector

NOTE: The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table), using the free space impedance of 377 Ohms. For example the measurement at frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to Y - 51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

10.4. WORST CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)





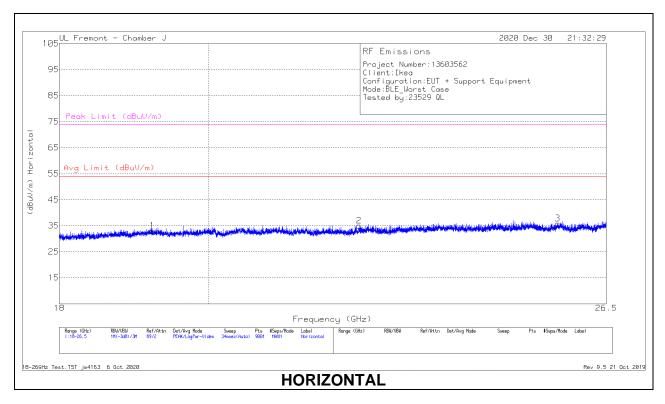
Below 1GHz Data

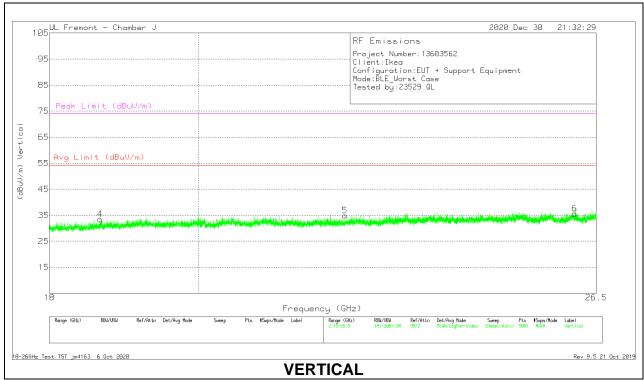
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	64.774	42.68	Pk	13.9	-31.3	25.28	40	-14.72	0-360	389	Н
2	153.707	46.68	Pk	18.1	-30.7	34.08	43.52	-9.44	0-360	196	Н
4	47.7696	54.02	Pk	14.5	-31.4	37.12	40	-2.88	0-360	101	V
	47.8086	51.26	Qp	14.5	-31.4	34.36	40	-5.64	34	100	V
5	64.774	51.69	Pk	13.9	-31.3	34.29	40	-5.71	0-360	101	V
	64.7893	50.76	Qp	13.9	-31.3	33.36	40	-6.64	279	100	V
6	104.7343	49.39	Pk	17.1	-30.9	35.59	43.52	-7.93	0-360	101	V
3	249.9065	32.25	Pk	17.4	-30.2	19.45	46.02	-26.57	0-360	199	Н

Pk - Peak detector Qp - Quasi-Peak detector

10.5. WORST CASE 18-26 GHz

SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)





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18 - 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T447 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.22211	67.28	Pk	32.7	-57.4	-9.5	33.08	54	-20.92	74	-40.92
2	22.24905	68.5	Pk	33.6	-57.6	-9.5	35	54	-19	74	-39
3	25.60561	66.24	Pk	34.5	-55.4	-9.5	35.84	54	-18.16	74	-38.16
4	18.65733	69.13	Pk	32.4	-58.6	-9.5	33.43	54	-20.57	74	-40.57
5	22.18294	68.29	Pk	33.5	-57.4	-9.5	34.89	54	-19.11	74	-39.11
6	26.09483	65.87	Pk	34.5	-55.3	-9.5	35.57	54	-18.43	74	-38.43

Pk - Peak detector

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Fraguency of Emission (MU=)	Conducted Limit (dB _µ V)						
Frequency of Emission (MHz)	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.

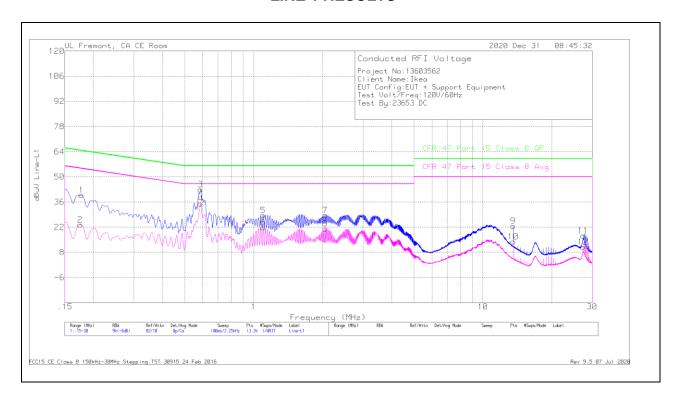
TEST PROCEDURE

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 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

LINE 1 RESULTS



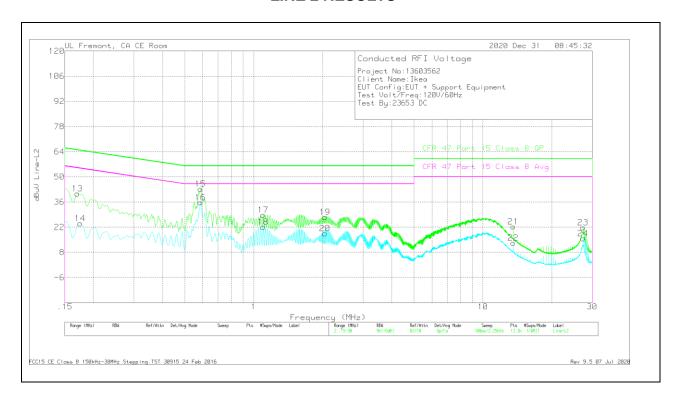
Rang	e 1: Line-L1	1 .15 - 30	MHz								
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE01864 46 LISN L1	LC Cables C1&C3 dB	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)M argin (dB)
1	.177	29.68	Qp	0	0	10.1	39.78	64.63	-24.85	-	-
2	.17475	13.33	Ca	0	0	10.1	23.43	-	-	54.73	-31.3
3	.5865	32.91	Qp	0	0	10.1	43.01	56	-12.99	-	-
4	.5865	25.04	Ca	0	0	10.1	35.14	-	-	46	-10.86
5	1.0995	18.48	Qp	0	.1	10.1	28.68	56	-27.32	-	-
6	1.0995	11.64	Ca	0	.1	10.1	21.84	-	-	46	-24.16
7	2.049	18.35	Qp	0	.1	10.1	28.55	56	-27.45	-	-
8	2.049	10.85	Ca	0	.1	10.1	21.05	-	-	46	-24.95
9	13.56	12.13	Qp	.1	.2	10.2	22.63	60	-37.37	-	-
10	13.56	3.54	Ca	.1	.2	10.2	14.04	-	-	50	-35.96
11	27.37725	6.55	Qp	0	.3	10.5	17.35	60	-42.65	-	-
12	27.37725	.27	Ca	0	.3	10.5	11.07	-	-	50	-38.93

Qp - Quasi-Peak detector

Ca - CISPR average detection

NOTE: Markers 9 and 10, 13.56MHz is an external NFC signal unrelated to the EUT.

LINE 2 RESULTS



Rang	e 2: Line-L	2 .15 - 30)MHz								
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE01864 46 LISN L2	LC Cables C2&C3 dB	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
13	.17025	30.63	Qp	0	0	10.1	40.73	64.95	-24.22	-	-
14	.17475	13.92	Ca	0	0	10.1	24.02	-	-	54.73	-30.71
15	.5865	33.15	Qp	0	0	10.1	43.25	56	-12.75	-	-
16	.5865	25.61	Ca	0	0	10.1	35.71	-	-	46	-10.29
17	1.0995	18.55	Qp	0	.1	10.1	28.75	56	-27.25	-	-
18	1.0995	11.98	Ca	0	.1	10.1	22.18	-	-	46	-23.82
19	2.0445	17.32	Qp	0	.1	10.1	27.52	56	-28.48	-	-
20	2.0445	8.29	Ca	0	.1	10.1	18.49	-	-	46	-27.51
21	13.56	11.9	Qp	.1	.2	10.2	22.4	60	-37.6	-	-
22	13.56	2.8	Ca	.1	.2	10.2	13.3	-	-	50	-36.7
23	27.375	10.9	Qp	.1	.3	10.5	21.8	60	-38.2	-	-
24	27.375	4.78	Ca	.1	.3	10.5	15.68	-	-	50	-34.32

Qp - Quasi-Peak detector

Ca - CISPR average detection

NOTE: Markers 21 and 22, 13.56MHz is an external NFC signal unrelated to the EUT.