TEST REPORT

Report Number. : 13171837-E7V2

Applicant	:	Samsung Electronics Co., Ltd. 129 Samsung-Ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 16677 Korea
Model	:	SM-A515U, SM-A515U1, SM-A515W and SM-S515DL
FCC ID	:	A3LSMA515U
ISED	:	649E-SMA515W
EUT Description	:	GSM/CDMA/WCDMA/LTE Phablet with BT/BLE, DTS/UNII a/b/g/n/ac, NFC and ANT+
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C ISED RSS-210 ISSUE 9 ISED RSS-GEN Issue 5

Date Of Issue:
February 27, 2020

Prepared by:
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NVLAP TESTING

NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	1/14/2020	Initial Issue	
V1	2/27/2020	Updated Cover Page and Section 1	Steven Tran

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Samsung Electronics Co., Ltd.
129 Samsung-Ro, Yeongtong-Gu,
Suwon-Si, Gyeonggi-Do, 16677, Korea

EUT DESCRIPTION: GSM/CDMA/WCDMA/LTE Phablet with BT/BLE, DTS/UNII a/b/g/n/ac, NFC and ANT+

MODEL: SM-A515U, SM-A515U1, SM-A515W and SM-S515DL

SERIAL NUMBER: Radiated: R38M808E5AH

DATE TESTED: November 27 – January 7, 2020

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	Complies
ISED RSS-210 Issue 9, Annex B	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.

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2. TEST METHODOLOGY

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, ISED RSS-GEN Issue 5 and ISED RSS-210 Issue 9.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd
☐ Chamber A	☐ Chamber D	☐ Chamber I
☐ Chamber B	☐ Chamber E	☒ Chamber J
☐ Chamber C	☐ Chamber F	☐ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code: 2324A.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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. 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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 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 is a GSM/CDMA/WCDMA/LTE Phablet with BT/BLE, DTS/UNII a/b/g/n/ac, NFC and ANT+.
The model SM-A515U was used for final testing and is representative of the test results in this report.

5.2. MAXIMUM FIELD STRENGTH

The testing was performed at 3 meters. The transmitter maximum E-field at 30 meter distance was 12.57 dBuV/m, which was converted from the 3 meter data.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes the loop antenna.

5.4. SOFTWARE

The test utility software used during testing was A515U.001.

5.5. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated under three orthogonal orientations X (Flatbed), Y (Landscape), and Z (Portrait). The Y (Portrait) orientation was determined to be the worst-case orientation.

In addition, Type A (CE – Card Emulator Mode), B and F were investigated to determine the worst case based on the highest power and spurious emissions. Type A, and data rate of 106kbps was determined to be the worst case and therefore Type A was selected for all final tests.

Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	Samsung	EP-TA200	R37KBKL03C1DK3	N/A
Earphone	Samsung	N/A	N/A	N/A

I/O CABLES (RADIATED AND AC LINE CONDUCTED EMISSIONS)

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	USB	1	USB	Shielded	1	N/A
2	earphone	1	3.5mm	Un-shielded	1	N/A

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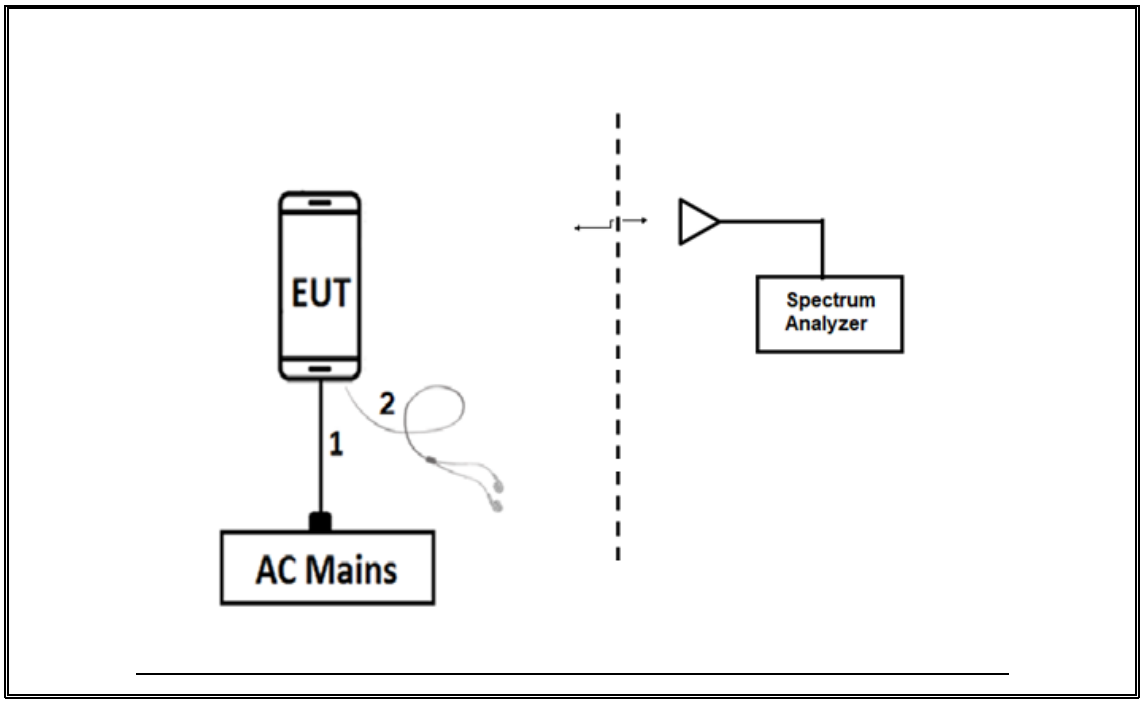
RADIATED AND AC LINE CONDUCTED EMISSIONS SETUP DIAGRAM



TEST SETUP

For radiated tests: EUT is connected to earphone. The test software exercises the radio.

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6. 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**	**Asset**	**Cal Due**
Antenna, Active Loop 9kHz to 30MHz	COM-POWER CORP.	AL-130R	PRE0165308	04/11/2020
Antenna, Passive Loop 30Hz to 1MHz	ELETRO METRICS	EM-6871	PRE0179466	05/31/2020
Antenna, Passive Loop 100KHz to 30MHz	ELETRO METRICS	EM-6872	PRE0179468	05/31/2020
Environmental Chamber	Thermotron Industries	SE-600-10-10	T80	05/07/2020
Antenna, Broadband Hybrid, 30MHz to 2GHz	Sunol Sciences	JB3	T899	08/23/2020
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	PRE0180174	06/01/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies	N9030A	T1450	01/23/2020
EMI Test Receiver	Rohde&Schwarz	ESW44	PRE0179367	05/16/2020
AC Line Conducted				
EMI Receiver	Rohde & Schwarz	ESR	T1436	02/14/2020
LISN for Conducted Emissions CISPR-16	FCC INC.	FCC LISN 50/250	T1310	01/24/2020
UL AUTOMATION SOFTWARE				
Radiated Software	UL	UL EMC	Ver 9.5, June 15, 2019	
Antenna Port Software	UL	UL RF	Ver 11.13, Nov 13, 2019	
AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015	

NOTES:
1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

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7. OCCUPIED BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 10kHz. 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 or 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

99% and 20dB BW

Type A (Card Emulator Mode)

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
424	13.56	21.898	25.33
212	13.56	22.818	24.79
106	13.56	23.438	24.96

TYPE B

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
424	13.56	21.547	24.86
212	13.56	22.177	24.92
106	13.56	22.510	24.26

TYPE F

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
424	13.56	21.241	25.12
212	13.56	21.154	24.73

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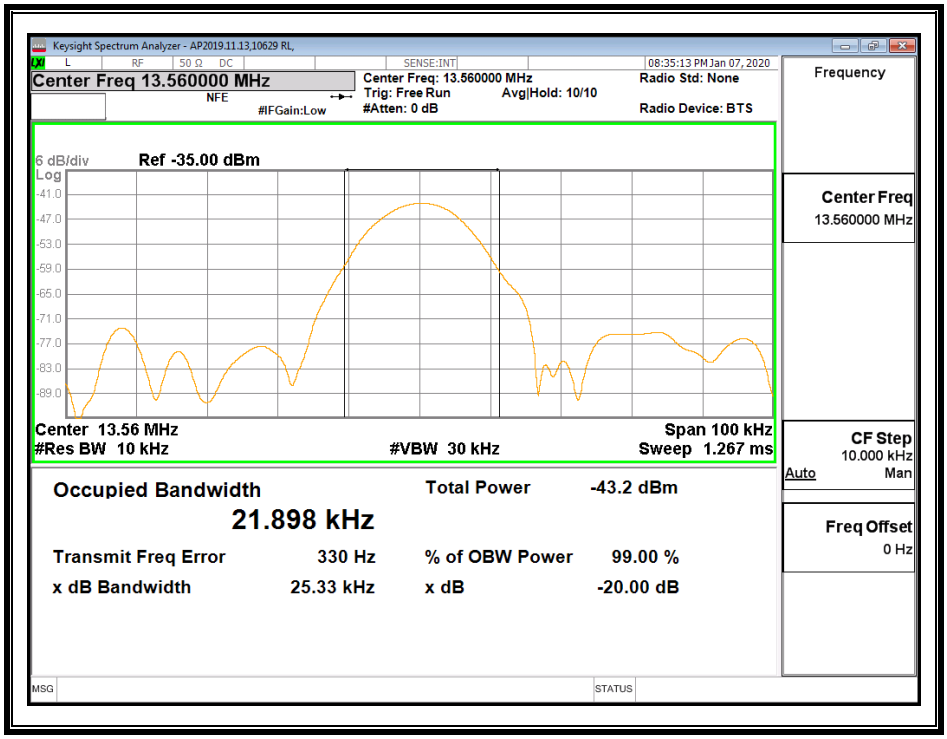
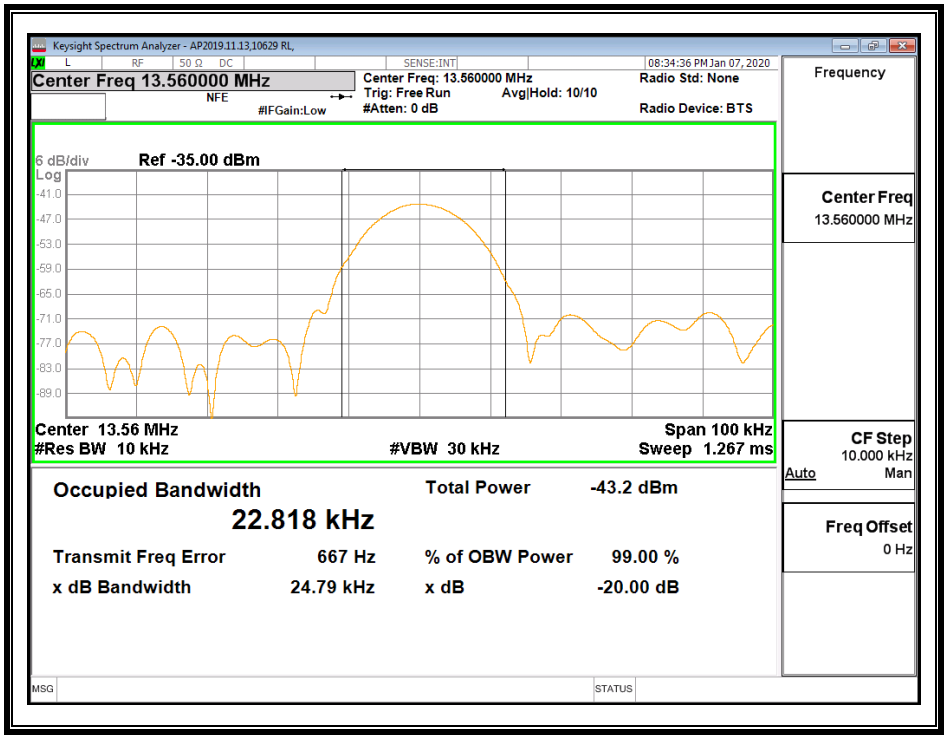
7.1. Type A

424Kbps



212Kbps



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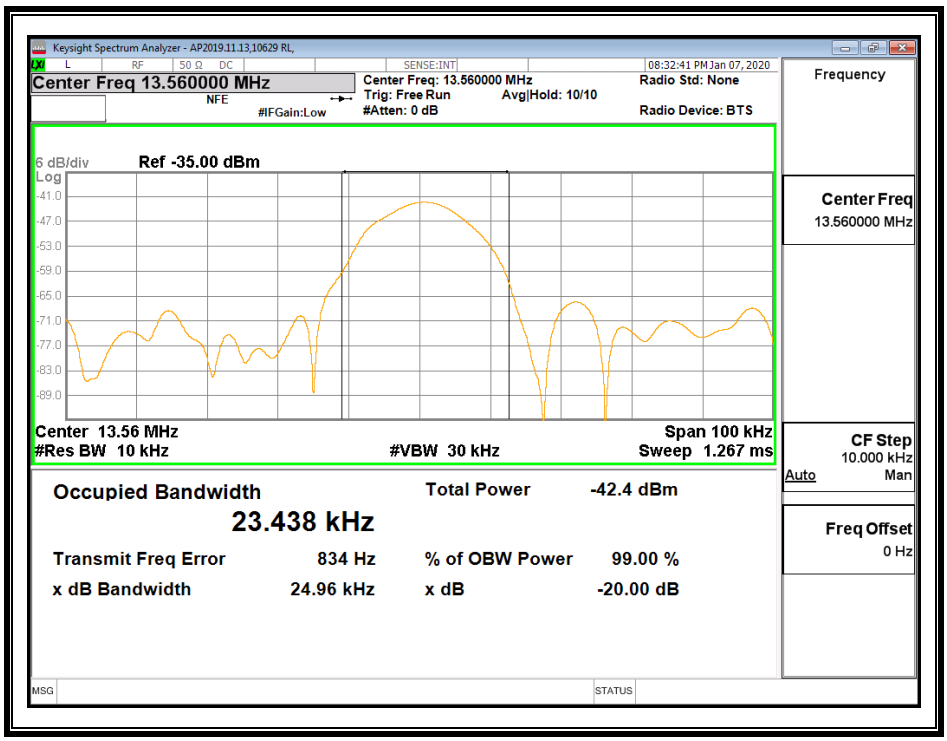
106Kbps



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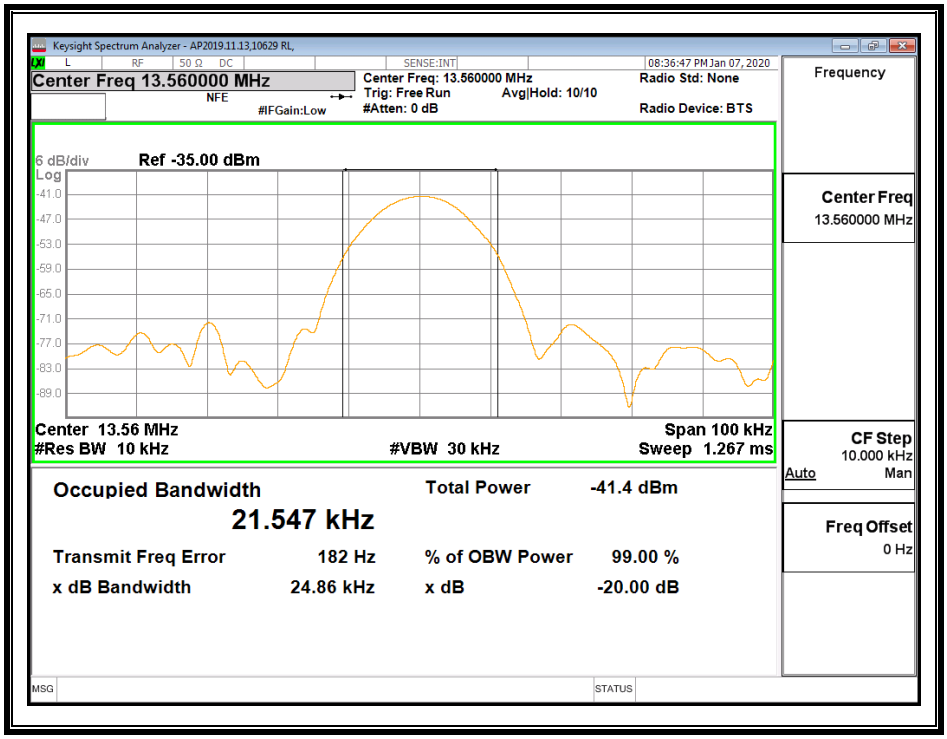
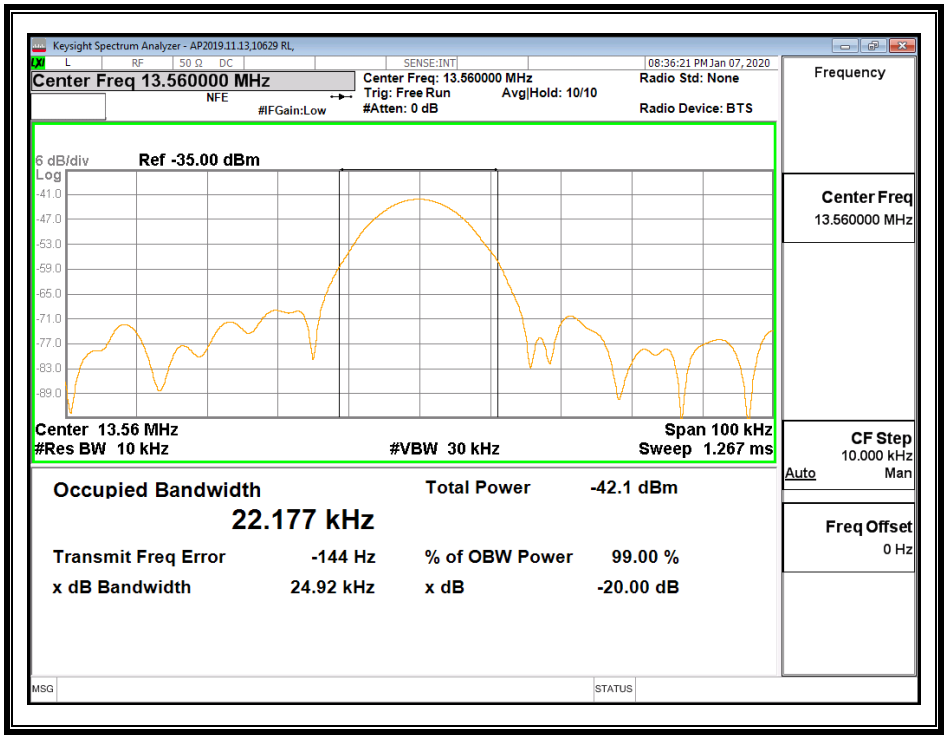
7.2. Type B

424Kbps



212Kbps



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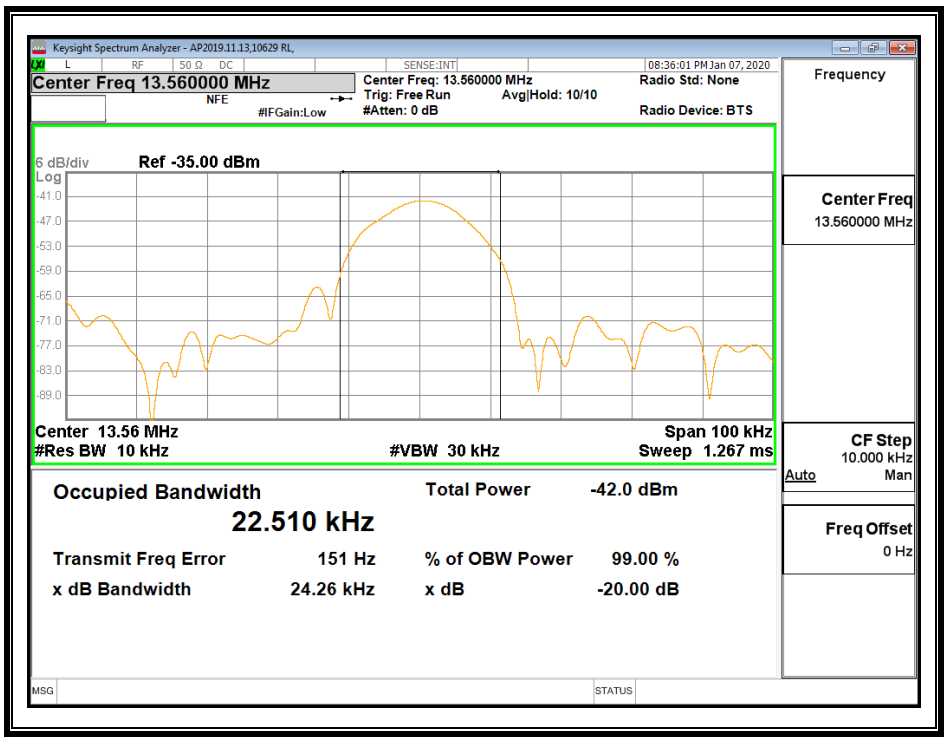
106Kbps



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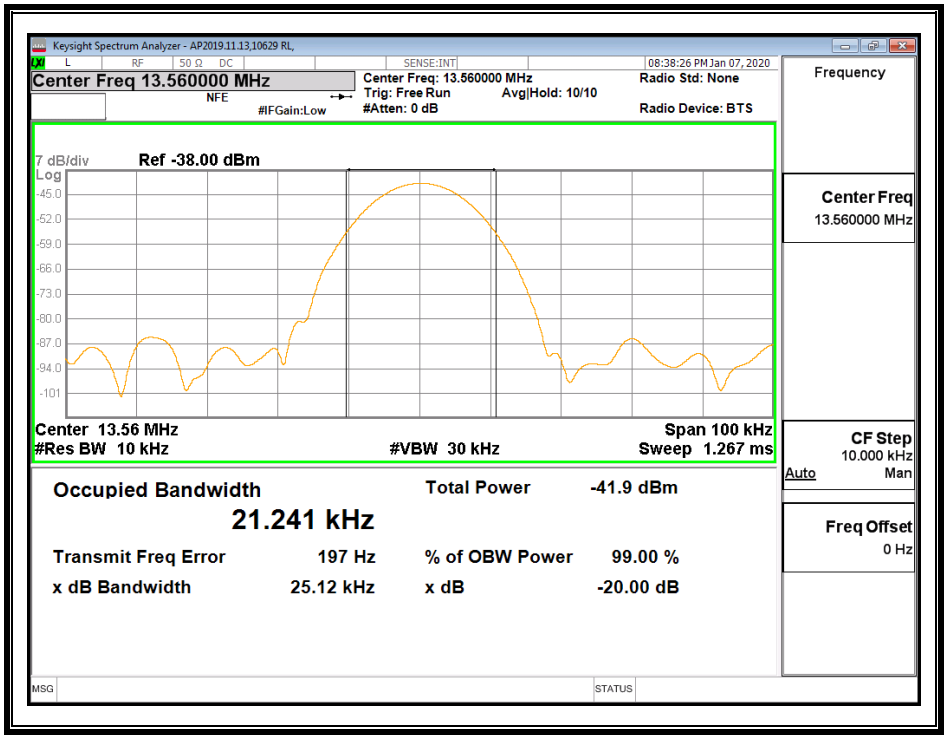
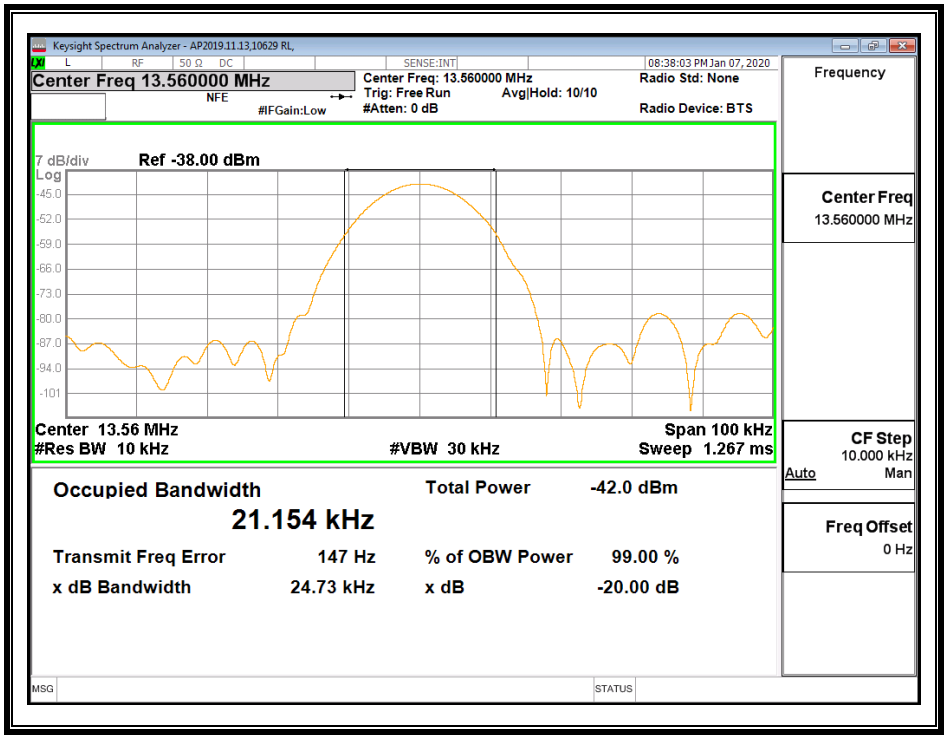
7.3. Type F

424Kbps



212Kbps



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8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

§15.225
ICED RSS-210, Annex B.6 (Transmitter)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:
§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	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 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.
§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

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In addition:

§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

ANSI C63.10, 2013

The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

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.

KDB 414788 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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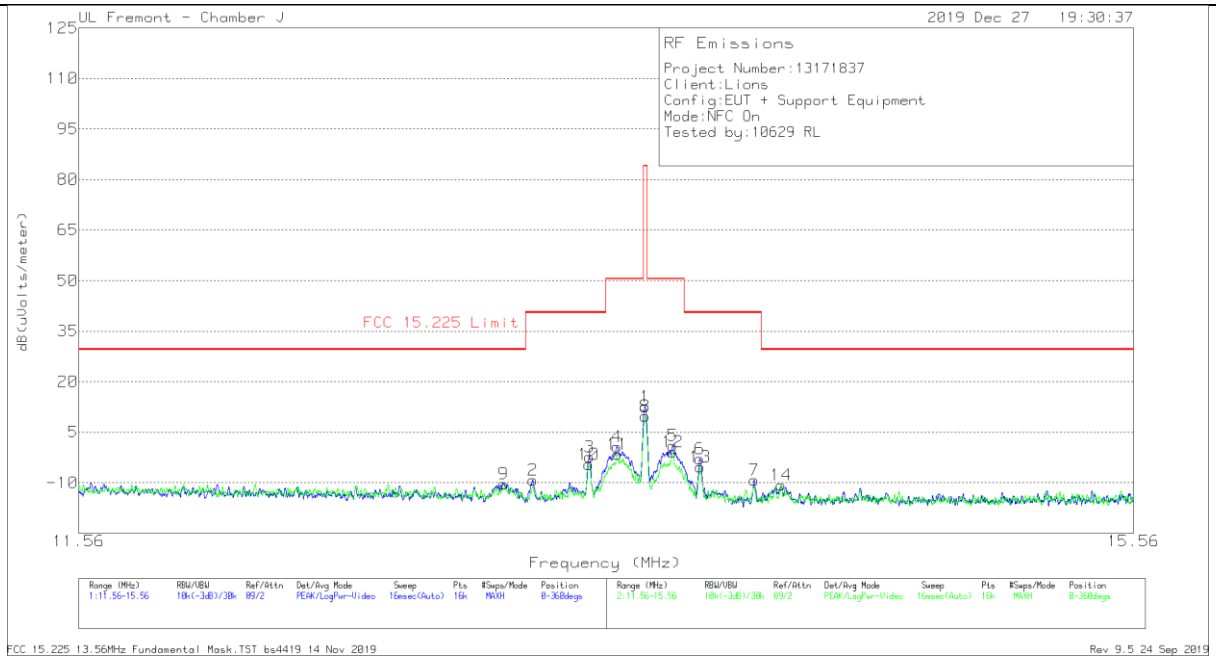
8.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 - 30 MHz)

TYPE A - 106Kbps (CE Mode)

FUNDAMENTAL EMISSION MASK - (11.56 – 15.56 MHz)



ANTENNA- TWO ORIENTATIONS FACE ON/FACE OFF

NOTE: All data rate Field Strength was investigated and Type A, 106k found to have the highest Field Strength results and represents as the worst case data rate.

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)
1	*13.55963	37.37	Pk	14.8	.4	-40	12.57	84	-71.43	0-360
2	13.13738	15.49	Pk	14.9	.4	-40	-9.21	40.51	-49.72	0-360
3	13.34788	22.48	Pk	14.8	.4	-40	-2.32	40.51	-42.83	0-360
4	13.45213	25.45	Pk	14.8	.4	-40	.65	50.5	-49.85	0-360
5	13.66563	25.9	Pk	14.8	.4	-40	1.1	50.5	-49.4	0-360
6	13.77138	21.99	Pk	14.7	.4	-40	-2.91	40.51	-43.42	0-360
7	13.98313	15.6	Pk	14.7	.4	-40	-9.3	40.51	-49.81	0-360
8	*13.55963	34.59	Pk	14.8	.4	-40	9.79	84	-74.21	0-360
9	13.02988	14.38	Pk	14.9	.4	-40	-10.32	29.54	-39.86	0-360
10	13.347	20.24	Pk	14.8	.4	-40	-4.56	40.51	-45.07	0-360
11	13.4545	23.15	Pk	14.8	.4	-40	-1.65	50.5	-52.15	0-360
12	13.66563	23.95	Pk	14.8	.4	-40	-.85	50.5	-51.35	0-360
13	13.77163	19.62	Pk	14.7	.4	-40	-5.28	40.51	-45.79	0-360
14	14.09038	14.1	Pk	14.7	.4	-40	-10.8	29.54	-40.34	0-360

* - Indicates fundamental frequency
Pk - Peak detector

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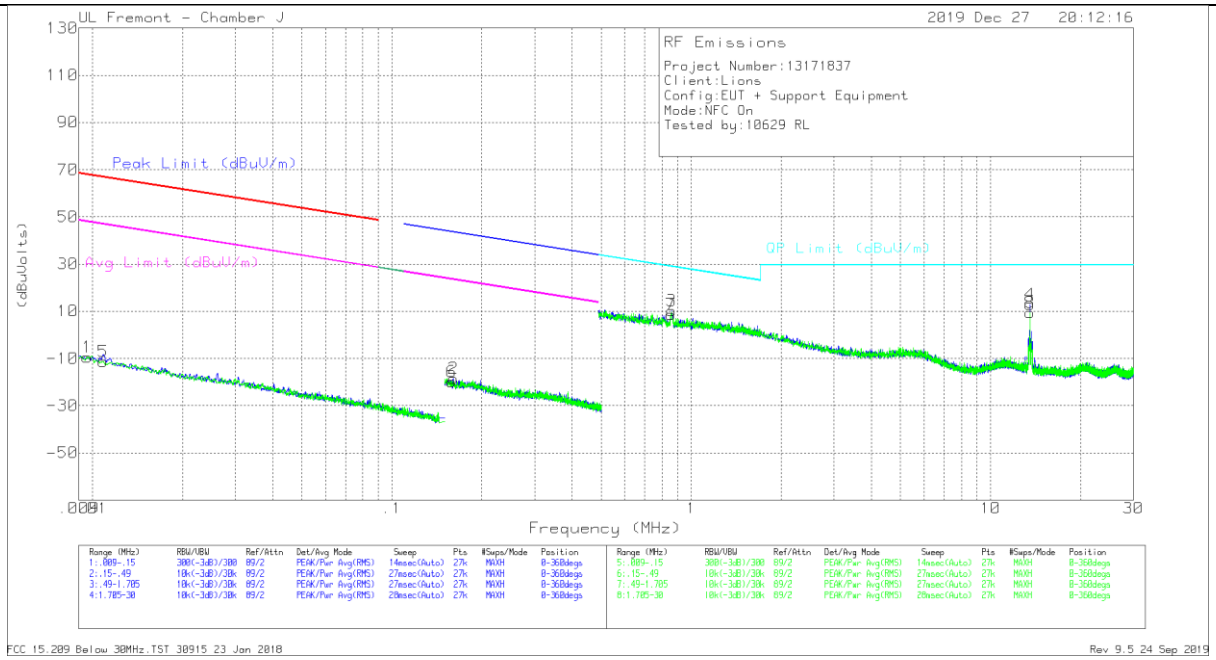
SPURIOUS EMISSIONS (0.09 – 30MHz)



ANTENNA- TWO ORIENTATIONS FACE ON/FACE OFF

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0096	55	Pk	15.6	0	-80	-9.4	67.94	-77.34	47.94	-57.34	-	-	0-360
2	.16033	47.39	Pk	14	.1	-80	-18.51	43.52	-62.03	23.52	-42.03	-	-	0-360
5	.01084	53.4	Pk	15.3	0	-80	-11.3	66.88	-78.18	46.88	-58.18	-	-	0-360
6	.15801	46.18	Pk	14	.1	-80	-19.72	43.65	-63.37	23.65	-43.37	-	-	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.86044	35.82	Pk	14.2	.1	-40	10.12	-	-	-	-	28.92	-18.8	0-360
4	*13.55893	37.7	Pk	14.8	.4	-40	12.9	-	-	-	-	29.5	-16.6	0-360
7	.85662	34.38	Pk	14.2	.1	-40	8.68	-	-	-	-	28.96	-20.28	0-360
8	*13.55788	34.21	Pk	14.8	.4	-40	9.41	-	-	-	-	29.5	-20.09	0-360

* - Indicates fundamental frequency
Pk - Peak detector

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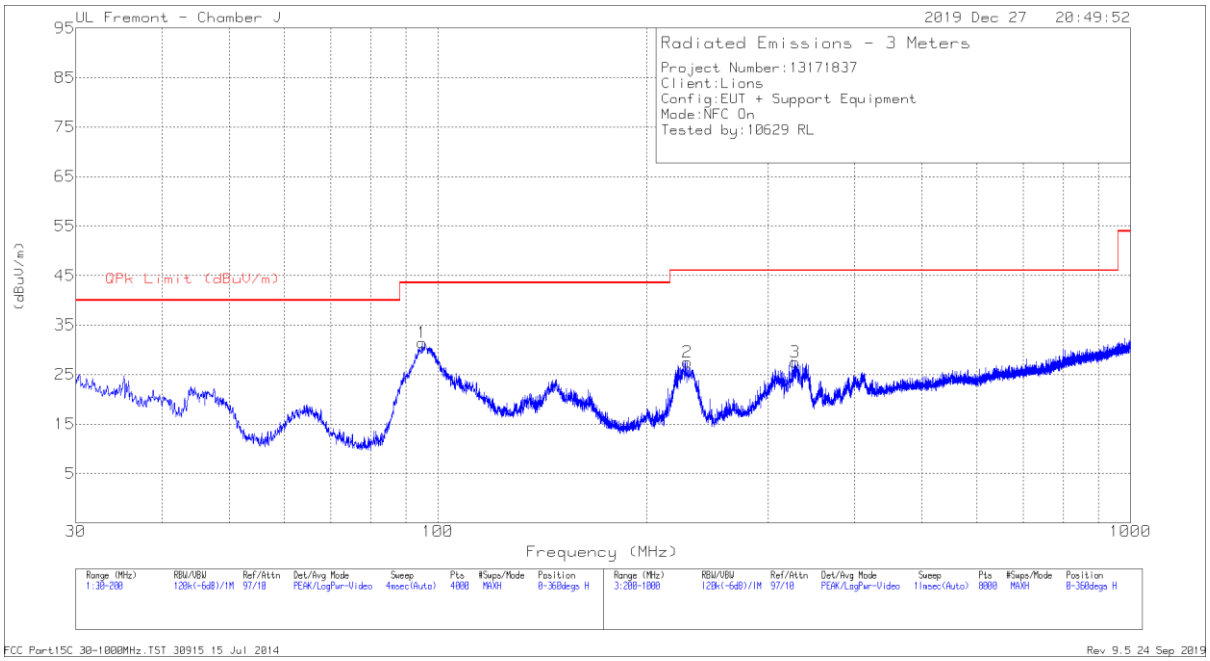
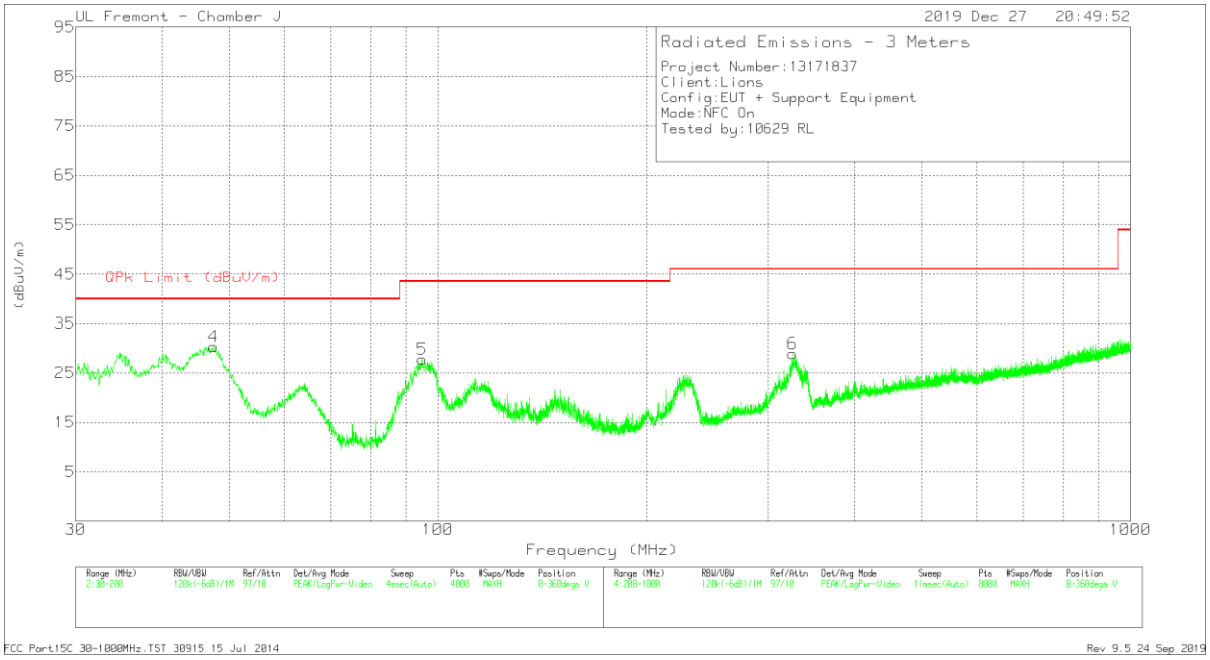
8.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

TYPE A - 106Kbps (CE Mode)



HORIZONTAL



VERTICAL

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Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T899 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	94.9113	45.04	Qp	14.8	-31	28.84	43.52	-14.68	164	183	H
4	47.012	41.28	Qp	15	-31.4	24.88	40	-15.12	63	187	V
5	94.9198	42.18	Qp	14.8	-31	25.98	43.52	-17.54	159	114	V
2	227.4158	37.58	Qp	16.8	-30.4	23.98	46.02	-22.04	229	134	H
3	* 326.7076	32.77	Qp	19.8	-30	22.57	46.02	-23.45	234	101	H
6	* 324.8469	36.69	Qp	19.8	-30	26.49	46.02	-19.53	124	140	V

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

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9. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency, over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

ISED RSS-210 Annex B.6: Carrier frequency stability shall be maintained to ±0.01% (±100 ppm).

TEST PROCEDURE

ANSI C63.10-2013 Clause 6.8

RESULTS

ID:	45256 JB	**Date:**	12/30/2019

No non-compliance noted.

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TYPE A - 106Kbps (CE Mode)

106Kbps

Reference Frequency: EUT Channel 13.56 MHz @ 20ºC Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measureed with Time Elapse								
(Vdc)	(ºC)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	13.5599661	0.044	13.5599659	0.059	13.5599657	0.074	13.5599655	0.088	± 100
3.80	40	13.5599666	0.007	13.5599666	0.007	13.5599666	0.007	13.5599667	0.000	± 100
3.80	30	13.5599667	0.000	13.5599666	0.007	13.5599665	0.015	13.5599666	0.007	± 100
3.80	***20***	***13.5599667***	***0.000***	***13.5599666***	***0.007***	***13.5599667***	***0.000***	***13.5599666***	***0.007***	***± 100***
3.80	10	13.5599679	-0.088	13.5599678	-0.081	13.5599676	-0.066	13.5599675	-0.059	± 100
3.80	0	13.5599686	-0.140	13.5599684	-0.125	13.5599684	-0.125	13.5599675	-0.059	± 100
3.80	-10	13.5599683	-0.118	13.5599689	-0.162	13.5599689	-0.162	13.5599693	-0.192	± 100
3.23	20	13.5599667	0.000	13.5599666	0.007	13.5599667	0.000	13.5599666	0.007	± 100
4.37	20	13.5599666	0.007	13.5599666	0.007	13.5599666	0.007	13.5599666	0.007	± 100

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10. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207
ISED RSS-GEN, Section 8.8

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

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.

RESULTS

No non-compliance noted:

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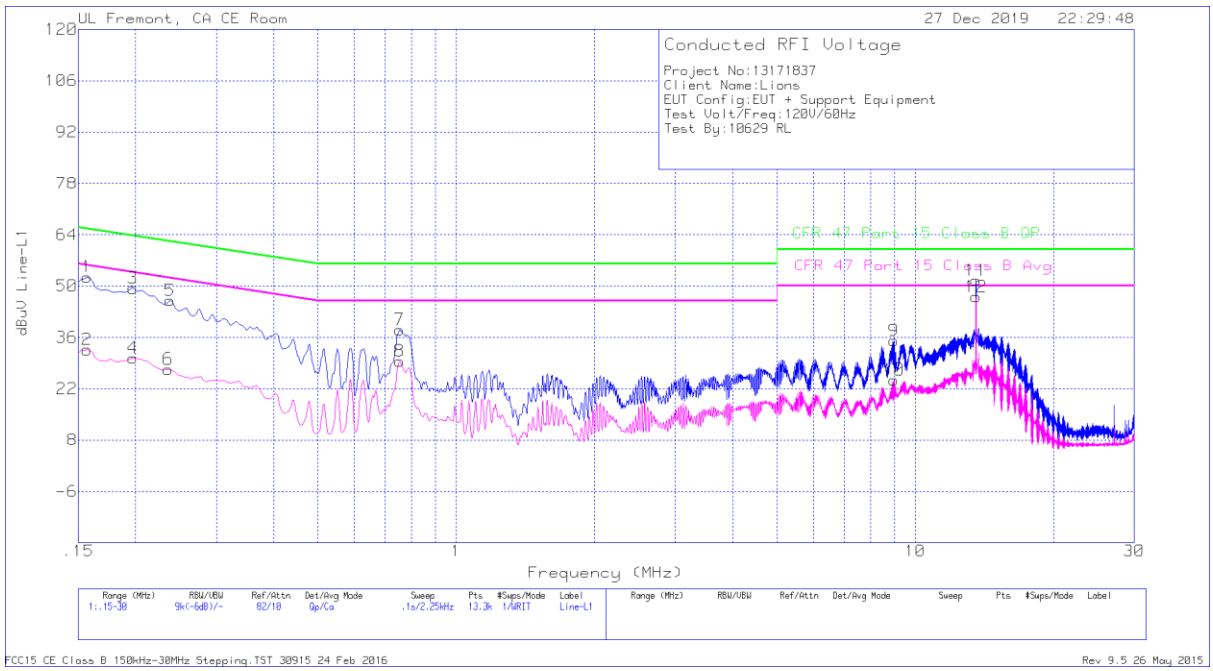
TYPE A - 106Kbps (CE Mode)

NORMAL OPERATION with ANTENNA

LINE 1 RESULTS



Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	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)
1	.15675	42.28	Qp	.1	0	10.1	52.48	65.63	-13.15	-	-
2	.15675	22.46	Ca	.1	0	10.1	32.66	-	-	55.63	-22.97
3	.19725	39.34	Qp	0	0	10.1	49.44	63.73	-14.29	-	-
4	.19725	20.29	Ca	0	0	10.1	30.39	-	-	53.73	-23.34
5	.23775	35.94	Qp	0	0	10.1	46.04	62.17	-16.13	-	-
6	.2355	17.21	Ca	0	0	10.1	27.31	-	-	52.25	-24.94
7	.753	27.97	Qp	0	0	10.1	38.07	56	-17.93	-	-
8	.753	19.44	Ca	0	0	10.1	29.54	-	-	46	-16.46
9	8.979	24.74	Qp	0	.2	10.2	35.14	60	-24.86	-	-
10	8.979	13.98	Ca	0	.2	10.2	24.38	-	-	50	-25.62
11	13.56	41.05	Qp	.1	.2	10.2	51.55	60	-8.45	-	-
12	13.56	36.59	Ca	.1	.2	10.2	47.09	-	-	50	-2.91

Qp - Quasi-Peak detector
Ca - CISPR average detection
Note: Markers 11 and 12 are the 13.56MHz NFC Fundamental

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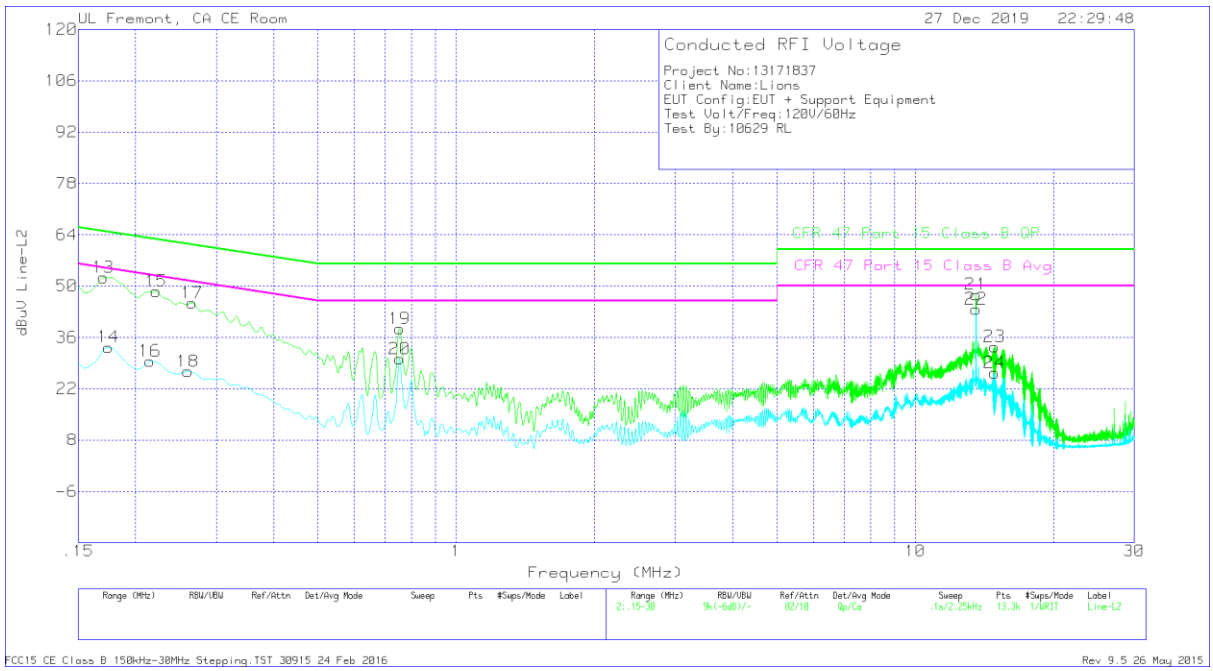
LINE 2 RESULTS



Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	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	42.25	Qp	0	0	10.1	52.35	64.95	-12.6	-	-
14	.17475	23.22	Ca	0	0	10.1	33.32	-	-	54.73	-21.41
15	.222	38.47	Qp	0	0	10.1	48.57	62.74	-14.17	-	-
16	.21525	19.42	Ca	0	0	10.1	29.52	-	-	53	-23.48
17	.26588	35.27	Qp	0	0	10.1	45.37	61.25	-15.88	-	-
18	.26025	16.61	Ca	0	0	10.1	26.71	-	-	51.42	-24.71
19	.753	28.27	Qp	0	0	10.1	38.37	56	-17.63	-	-
20	.753	20.05	Ca	0	0	10.1	30.15	-	-	46	-15.85
21	13.56	37.2	Qp	.1	.2	10.2	47.7	60	-12.3	-	-
22	13.56	33.25	Ca	.1	.2	10.2	43.75	-	-	50	-6.25
23	14.87625	22.88	Qp	.1	.3	10.2	33.48	60	-26.52	-	-
24	14.88075	15.74	Ca	.1	.3	10.2	26.34	-	-	50	-23.66

Qp - Quasi-Peak detector
Ca - CISPR average detection
Note: Markers 21 and 22 are the 13.56MHz NFC Fundamental

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