

FCC Radio Test Report

FCC ID: 2AB7X-WISEPOSPRO

This report concerns (check one): Original Grant Class I Change Class II Change

Project No. : 1906H001
Equipment : WisePOS Pro
Test Model : WSP71
Series Model : WSP72, WSP73
Applicant : BBPOS International Limited
Address : Suite 1903-04, 19/F, Tower 2, Nina Tower, No. 8
Yeung Uk Road, Tsuen Wan, N.T. HK

Date of Receipt : Jul. 12, 2019
Date of Test : Jul. 12, 2019~ Sep. 13, 2019
Issued Date : Sep. 13, 2019
Tested by : BTL Inc.

Technical Manager :

Krain. Wu

(Krain Wu)

Authorized Signatory :

young chai

(Young Chai)

B T L I N C .

No. 29, Jintang Road, Tangzhen Industry Park, Pudong New Area,
Shanghai 201210, China
TEL: +86-021-61765666



Certificate #5123.03

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NIST, A2LA, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and is not use in determining the Pass/Fail results.

Table of Contents**Page**

1 . GENERAL SUMMARY	6
2 . SUMMARY OF TEST RESULTS	7
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
3 . GENERAL INFORMATION	9
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	10
3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	11
3.4 DESCRIPTION OF SUPPORT UNITS	11
4 . EMC EMISSION TEST	12
4.1 CONDUCTED EMISSION MEASUREMENT	12
4.1.1 POWER LINE CONDUCTED EMISSION LIMITS	12
4.1.2 TEST PROCEDURE	12
4.1.3 DEVIATION FROM TEST STANDARD	12
4.1.4 TEST SETUP	13
4.1.5 EUT OPERATING CONDITIONS	13
4.1.6 EUT TEST CONDITIONS	13
4.1.7 TEST RESULTS	13
4.2 RADIATED EMISSION MEASUREMENT	14
4.2.1 RADIATED EMISSION LIMITS	14
4.2.2 TEST PROCEDURE	14
4.2.3 DEVIATION FROM TEST STANDARD	14
4.2.4 TEST SETUP	15
4.2.5 EUT OPERATING CONDITIONS	16
4.2.6 EUT TEST CONDITIONS	16
4.2.7 TEST RESULTS (9 KHZ TO 30 MHZ)	16
4.2.8 TEST RESULTS (30 MHZ TO 1000 MHZ)	16
5 . REQUENCY STABILITY	17
5.1 APPLIED PROCEDURES	17
5.1.1 TEST PROCEDURE	17
5.1.2 DEVIATION FROM STANDARD	17
5.1.3 TEST SETUP	17
5.1.4 EUT OPERATION CONDITIONS	18
5.1.5 EUT TEST CONDITIONS	18
5.1.6 TEST RESULTS	18
6 . 20DB SPECTRUM BANDWIDTH MEASUREMENT	19
6.1 APPLIED PROCEDURES	19
6.1.1 TEST PROCEDURE	19

Table of Contents	Page
6.1.2 DEVIATION FROM STANDARD	19
6.1.3 TEST SETUP	19
6.1.4 EUT OPERATION CONDITIONS	19
6.1.5 EUT TEST CONDITIONS	19
6.1.6 TEST RESULTS	19
7 . MEASUREMENT INSTRUMENTS LIST	20
APPENDIX A - CONDUCTED EMISSION	22
APPENDIX B - RADIATED EMISSION (9 KHZ TO 30 MHZ)	25
APPENDIX C - RADIATED EMISSION (30 MHZ TO 1000 MHZ)	32
APPENDIX D - FREQUENCY STABILITY	35
APPENDIX E - 20DB SPECTRUM BANDWIDTH MEASUREMENT	37

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Sep. 13, 2019

1. GENERAL SUMMARY

Equipment : WisePOS Pro
Brand Name : BBPOS
Test Model : WSP71
Series Model : WSP72, WSP73
Applicant : BBPOS International Limited
Manufacturer : BBPOS International Limited
Address : Suite 1903-04, 19/F, Tower 2, Nina Tower, No. 8 Yeung Uk Road, Tsuen Wan, N.T. HK
Date of Test : Jul. 12, 2019~ Sep. 13, 2019
Test Sample : Engineering Sample No.: SH19070367
Standard(s) : FCC Part 15, Subpart C: 15.225 / ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-8-1906H001) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): FCC Part 15, Subpart C: 15.225			
Standard(s) Section	Test Item	Judgment	Remark
15.207	Conducted Emissions	PASS	
15.225 (a) (b) (c) (d) and 15.209	Radiated Emissions	PASS	
15.203	Antenna Requirement	PASS	
-	20dB Occupied Bandwidth Measurement	PASS	

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 29, Jintang Road, Tangzhen Industry Park, Pudong New Area, Shanghai 201210, China.

BTL's Test Firm Registration Number for FCC: 476765

BTL's Designation Number for FCC: CN1241

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty figures shall be calculated according the methods described in the ETSI TR 100 028 and shall correspond to an expansion factor (coverage factor) $k=1.96$ or $k=2$ (which provide confidence levels of respectively 90% and 95.45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Measurement Uncertainty for a Level of Confidence of 95 %, $U=2xUc(y)$.

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U, (dB)
SH-C01	CISPR	150 kHz ~ 30 MHz	± 2.26

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
SH-CB01	CISPR	9 KHz~30 MHz	V	3.79
		9 KHz~30 MHz	H	3.57
		30 MHz~200 MHz	V	4.04
		30 MHz~200 MHz	H	3.76
		200 MHz~1,000 MHz	V	4.24
		200 MHz~1,000 MHz	H	3.84
		1 GHz~18 GHz	V	4.46
		1 GHz~18 GHz	H	4.40
		18 GHz~40 GHz	V	3.95
		18 GHz~40 GHz	H	3.95

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	WisePOS Pro	
Brand Name	BBPOS	
Model Name	WSP71	
Series Model	WSP72, WSP73	
Model Difference(s)	WSP71: WisePOS Pro device only; WSP72: WisePOS Pro device with hand strap; WSP73: WisePOS Pro device with pistol grip.	
Product Description	Operation Frequency	13.561MHz
	Product Class	1
	Number of Channel	1
	Antenna Type	External Antenna
Power Source	<ol style="list-style-type: none"> DC Voltage supplied from AC/DC adapter Supplied from Li-ion battery pack 	
Power Rating	<ol style="list-style-type: none"> I/P: 100-240V ~ 50/60Hz 1.0A O/P: 5V --- 3A/9V --- 3A 6400mAH 3.8V 	

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

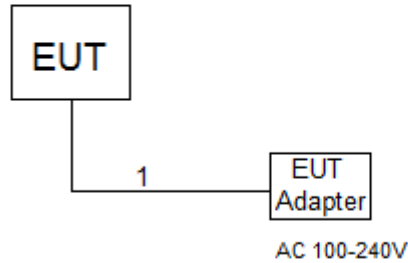
Pretest Test Mode	Description
Mode 1	TX Mode

Conducted emission test	
Final Test Mode	Description
Mode 1	TX Mode

Radiated emission test	
Final Test Mode	Description
Mode 1	TX Mode

Frequency Stability test/ Antenna Requirement test/ 20dB Occupied Bandwidth Measurement	
Final Test Mode	Description
Mode 1	TX Mode

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model/Type No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	N/A	N/A	1m

Note:

- (1) The support equipment was authorized by Declaration of Conformity (DOC).

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 150 kHz-30 MHz)

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56*	56 to 46*
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note:

- (1) The limit of " * " decreases with the logarithm of the frequency
- (2) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
 Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

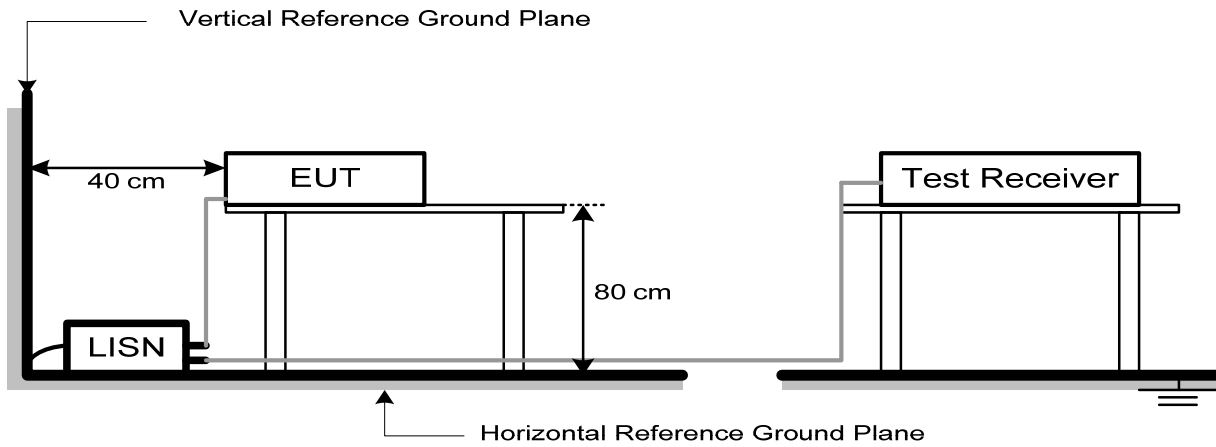
4.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



4.1.5 EUT OPERATING CONDITIONS

The EUT was placed on the test table and programmed in normal function.

4.1.6 EUT TEST CONDITIONS

Temperature: 24.5°C Relative Humidity: 53% Test Voltage: AC 120V/60Hz

4.1.7 TEST RESULTS

Please refer to the Appendix A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』 . If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a "*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150 kHz to 30 MHz.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

Clause 15.225(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.

Clause 15.225(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.

Clause 15.225(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.

Clause 15.225(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

§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 OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
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
960~1000	500	3

4.2.2 TEST PROCEDURE

The test set-up was made in accordance to the general provisions of ANSI C63.10-2013. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

Below 1GHz (detector: Peak and Quasi-Peak)

RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

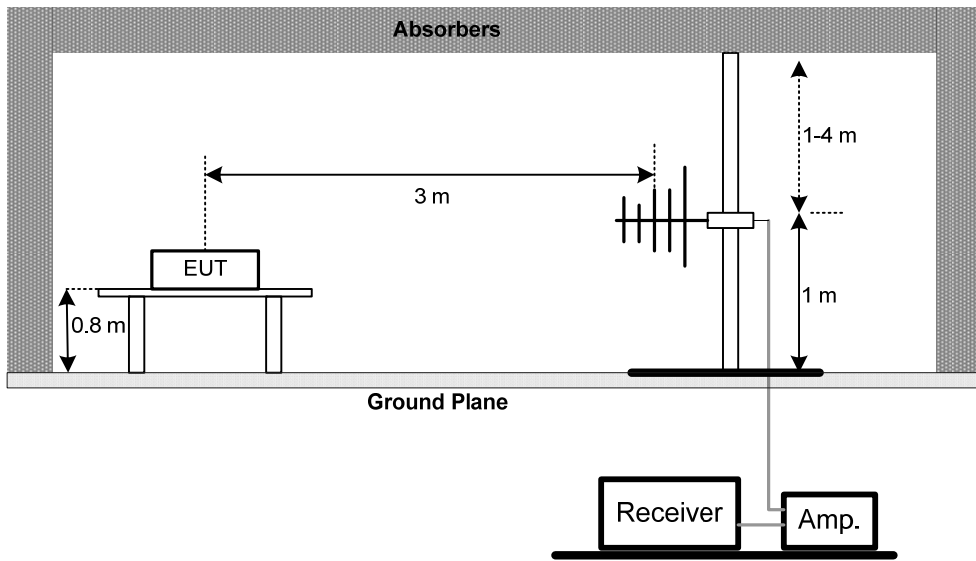
The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

4.2.3 DEVIATION FROM TEST STANDARD

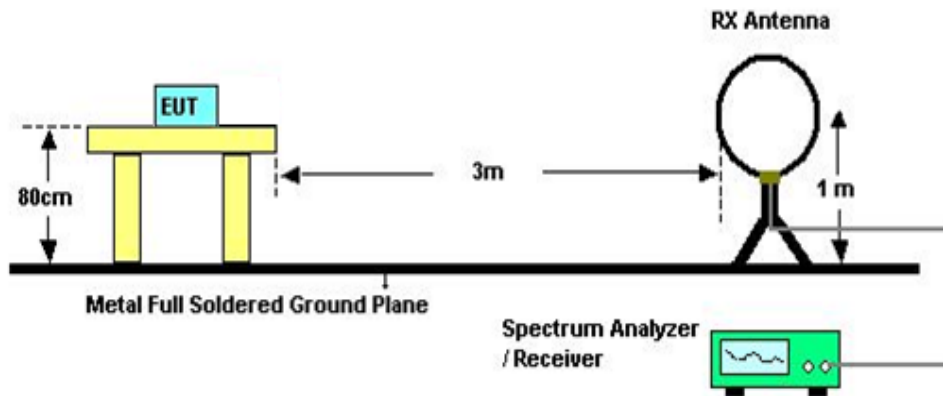
No deviation

4.2.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz



(B) For Radiated Emissions 9 kHz-30 MHz



4.2.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.2.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 59% Test Voltage: AC 120V/60Hz

4.2.7 TEST RESULTS (9 kHz TO 30 MHz)

Please refer to the Appendix B

4.2.8 TEST RESULTS (30 MHz TO 1000 MHz)

Please refer to the Appendix C.

Remark:

- (1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5. REQUENCY STABILITY

5.1 APPLIED PROCEDURES

FCC Part15 Subpart C				
Section	Test Item	Frequency Range (MHz)	Lmint (MHz)	Result
15.225(e)	Frequency Stability Tolerance	13.56MHz	±0.001MHz	PASS

5.1.1 TEST PROCEDURE

1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from 0°C to +40°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from 0°C to +40°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

2. Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

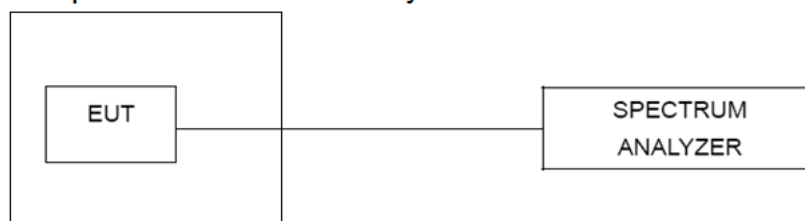
This transceiver is specified to operate with an input voltage of between 207 V AC and 253 V AC, with a nominal voltage of 230 V AC.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP

Temperature And Humidity Box



5.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.1.5 EUT TEST CONDITIONS

Temperature: 24.5°C Relative Humidity: 53% Test Voltage: AC 120V/60Hz

5.1.6 TEST RESULTS

Please refer to the Appendix D.

6. 20DB SPECTRUM BANDWIDTH MEASUREMENT

6.1 APPLIED PROCEDURES

The 20dB bandwidth shall be specified in operating frequency band.

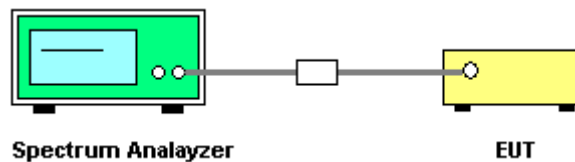
6.1.1 TEST PROCEDURE

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 10kHz RBW and 10kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.1.5 EUT TEST CONDITIONS

Temperature: 24.5°C Relative Humidity: 53% Test Voltage: AC 120V/60Hz

6.1.6 TEST RESULTS

Please refer to the Appendix E.

7. MEASUREMENT INSTRUMENTS LIST

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Line Impedance Stabilisation Network	Schwarzbeck	NNLK 8121	8121-822	Mar. 29, 2020
2	TWO-LINE V-NETWORK	R&S	ENV216	101340	Nov. 20, 2019
3	Test Cable	emci	EMCRG400-BM-NM-10000	170628	Apr. 17, 2020
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 29, 2020
5	50Ω Terminator	SHX	TF2-1G-A	17051602	Mar. 29, 2020
6	50Ω coaxial switch	Anritsu	MP59B	6201750902	Mar. 29, 2020
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Measurement-9 kHz TO 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Loop Antenna	EMCI	EMCI LPA600	275	Mar. 29, 2020
2	EMI Test Receiver	R&S	ESCI	100082	Mar. 29, 2020
3	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Measurement-30 MHz TO 1000 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	719	Mar. 29, 2020
2	Pre-Amplifier	emci	EMC9135	980400	Mar. 29, 2020
3	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 29, 2020
4	Test Cable	emci	EMC104-SM-SM-7000	170330	Apr. 17, 2020
5	Test Cable	emci	EMC104-SM-SM-1000	170331	Apr. 17, 2020
6	Test Cable	emci	EMC104-SM-NM-3500	170621	Apr. 17, 2020
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Frequency Stability					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 29, 2020
2	Temperature And Humidity Box	Blue pand	BPHS-120B	170616454	Nov. 20, 2019

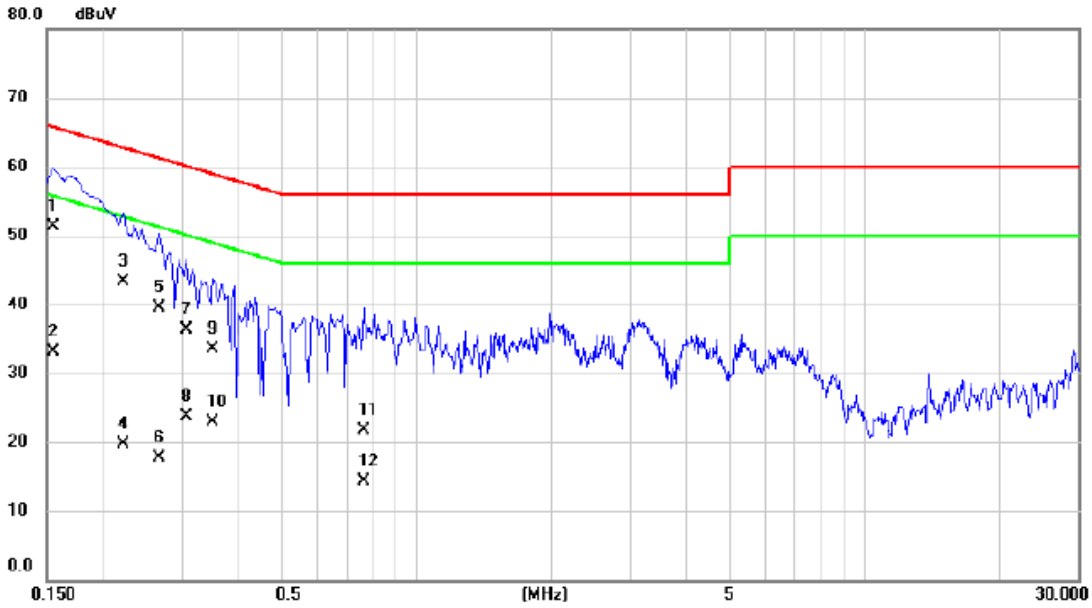
Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 29, 2020

Remark: "N/A" denotes no model name, serial no. or calibration specified.
 All calibration period of equipment list is one year.

APPENDIX A - CONDUCTED EMISSION

Test Mode: TX Mode

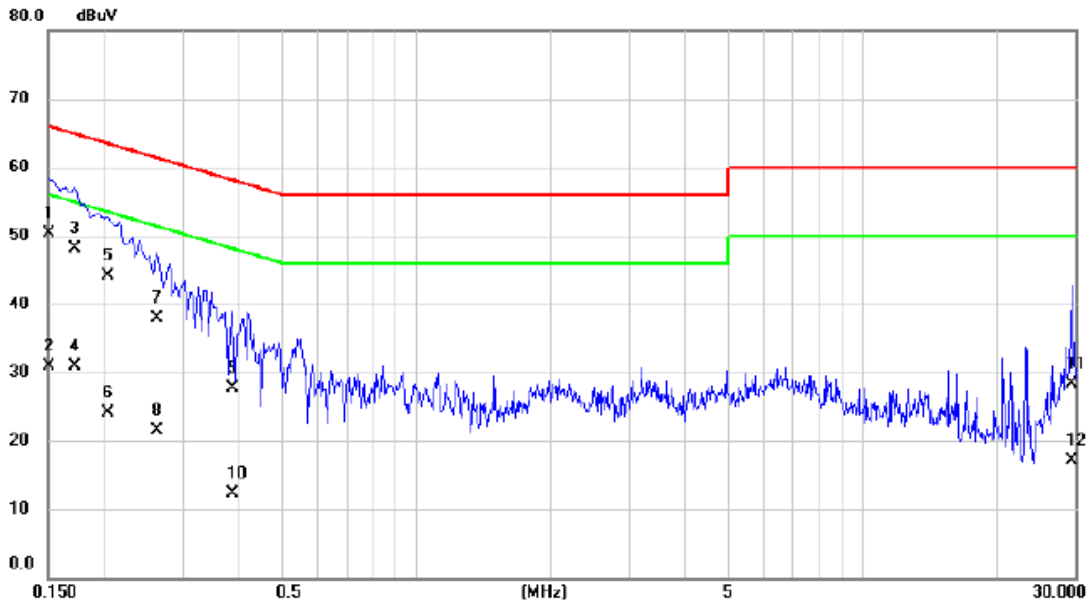
Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1544	41.60	9.76	51.36	65.76	-14.40	QP	
2		0.1544	23.30	9.76	33.06	55.76	-22.70	AVG	
3		0.2220	33.50	9.82	43.32	62.74	-19.42	QP	
4		0.2220	9.80	9.82	19.62	52.74	-33.12	AVG	
5		0.2670	29.70	9.82	39.52	61.21	-21.69	QP	
6		0.2670	7.80	9.82	17.62	51.21	-33.59	AVG	
7		0.3075	26.50	9.76	36.26	60.04	-23.78	QP	
8		0.3075	14.00	9.76	23.76	50.04	-26.28	AVG	
9		0.3525	23.60	9.83	33.43	58.90	-25.47	QP	
10		0.3525	13.00	9.83	22.83	48.90	-26.07	AVG	
11		0.7620	12.00	9.78	21.78	56.00	-34.22	QP	
12		0.7620	4.60	9.78	14.38	46.00	-31.62	AVG	

Test Mode: TX Mode

Neutral

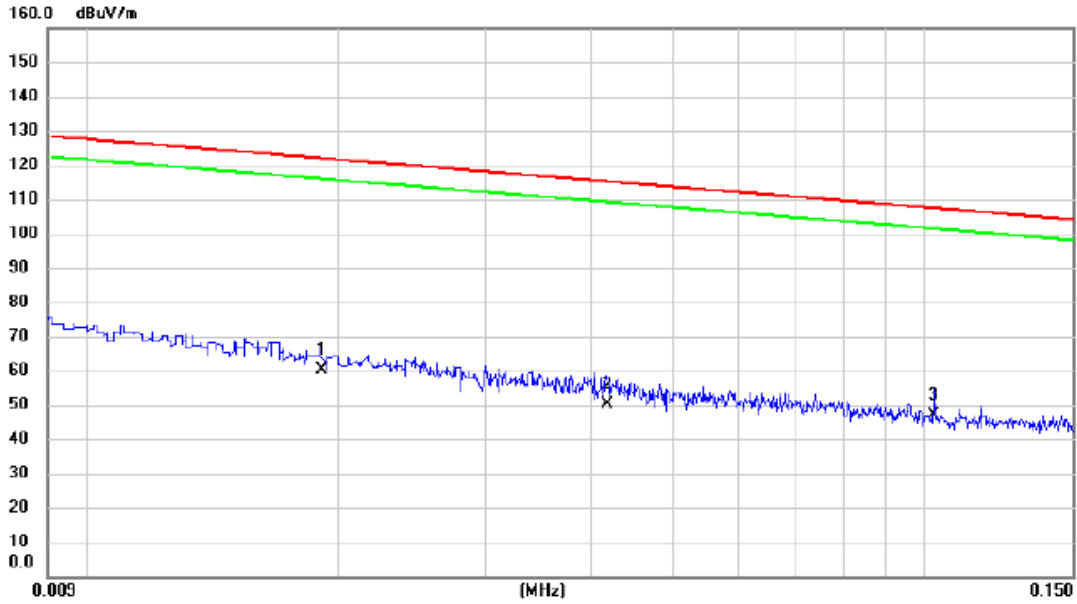


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1500	40.60	9.62	50.22	66.00	-15.78	QP	
2		0.1500	21.30	9.62	30.92	56.00	-25.08	AVG	
3		0.1725	38.50	9.57	48.07	64.84	-16.77	QP	
4		0.1725	21.30	9.57	30.87	54.84	-23.97	AVG	
5		0.2040	34.50	9.64	44.14	63.45	-19.31	QP	
6		0.2040	14.50	9.64	24.14	53.45	-29.31	AVG	
7		0.2625	28.20	9.71	37.91	61.35	-23.44	QP	
8		0.2625	11.80	9.71	21.51	51.35	-29.84	AVG	
9		0.3885	18.00	9.72	27.72	58.10	-30.38	QP	
10		0.3885	2.50	9.72	12.22	48.10	-35.88	AVG	
11		29.4180	18.60	9.63	28.23	60.00	-31.77	QP	
12		29.4180	7.50	9.63	17.13	50.00	-32.87	AVG	

APPENDIX B - RADIATED EMISSION (9 KHZ TO 30 MHZ)

Test Mode: TX Mode

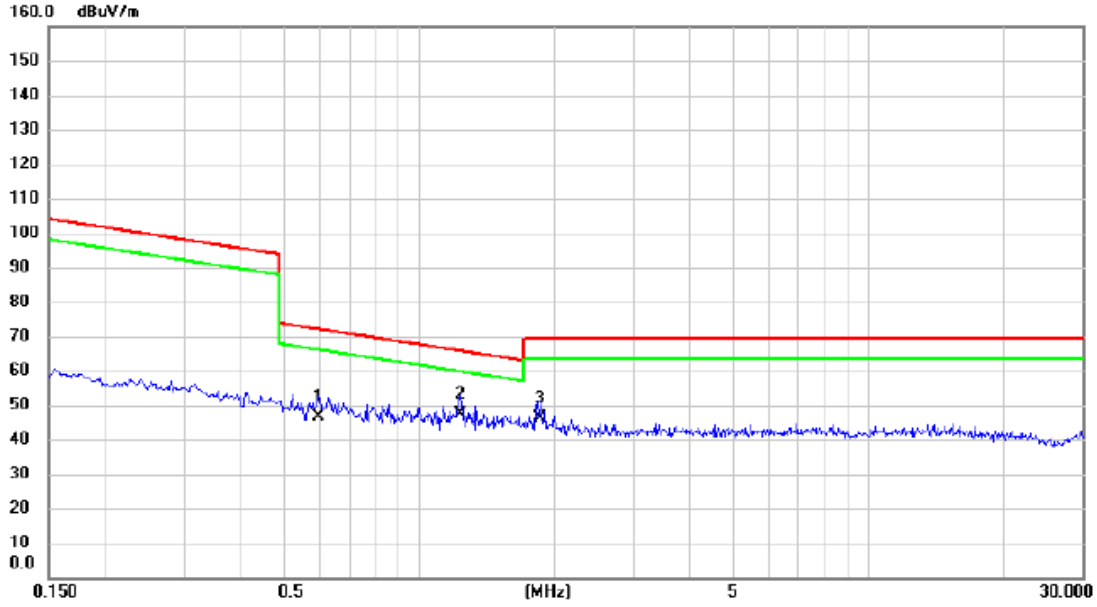
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.0191	-12.80	72.85	60.05	121.98	-61.93	AVG	
2		0.0418	-15.90	66.25	50.35	115.18	-64.83	AVG	
3	*	0.1026	-10.90	57.85	46.95	107.38	-60.43	QP	

Test Mode: TX Mode

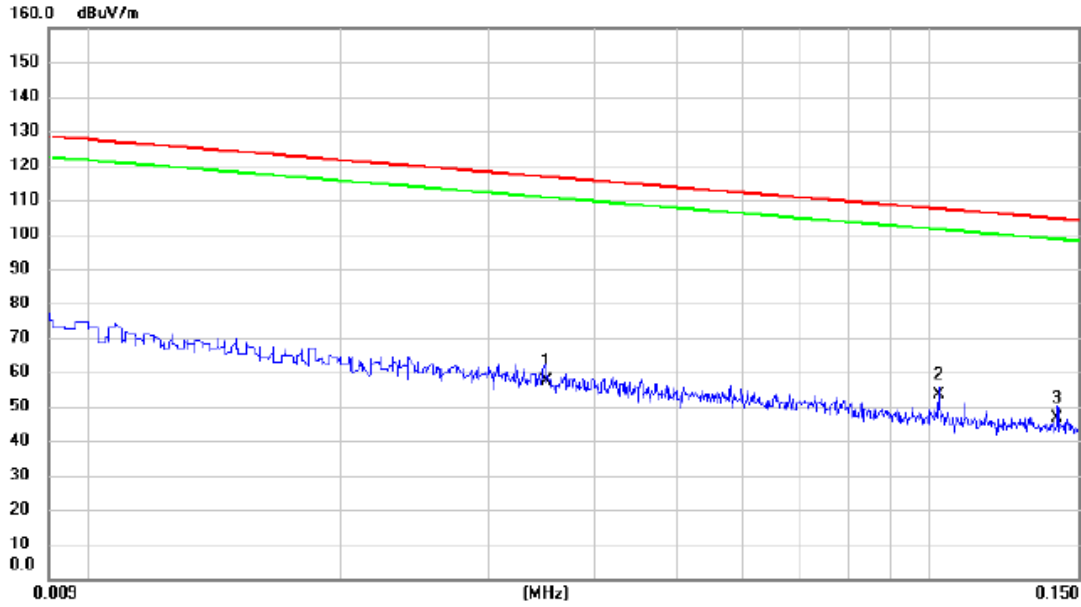
Ant 0°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.5954	2.56	43.86	46.42	72.11	-25.69	QP	
2	*	1.2344	6.90	40.64	47.54	65.78	-18.24	QP	
3		1.8600	7.00	39.14	46.14	69.54	-23.40	QP	

Test Mode: TX Mode

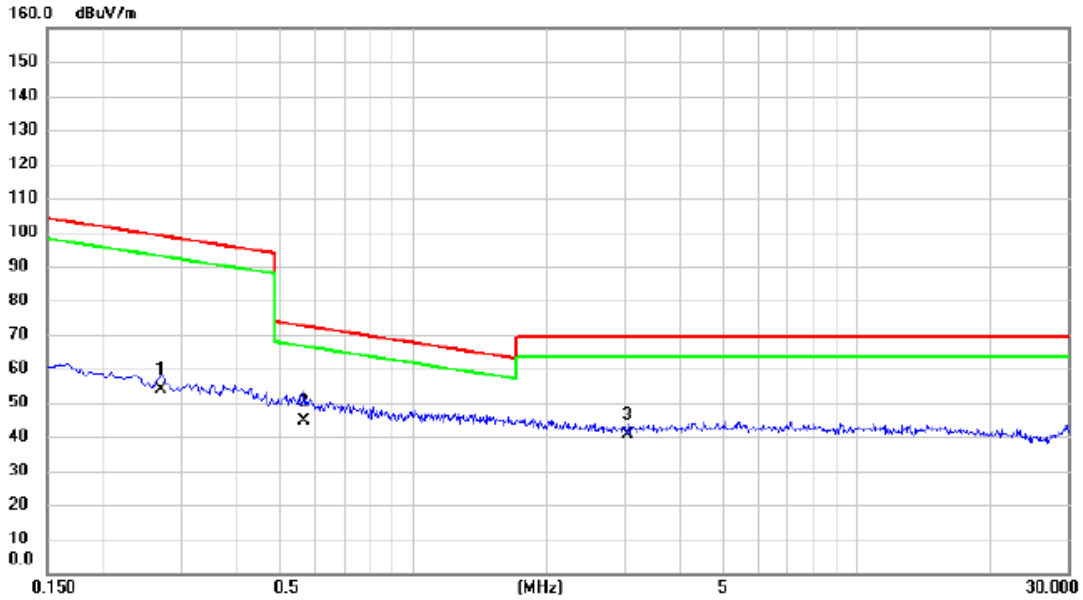
Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0350	-10.90	68.20	57.30	116.72	-59.42	AVG	
2	*	0.1025	-4.60	57.85	53.25	107.39	-54.14	QP	
3		0.1417	-8.80	55.54	46.74	104.58	-57.84	AVG	

Test Mode: TX Mode

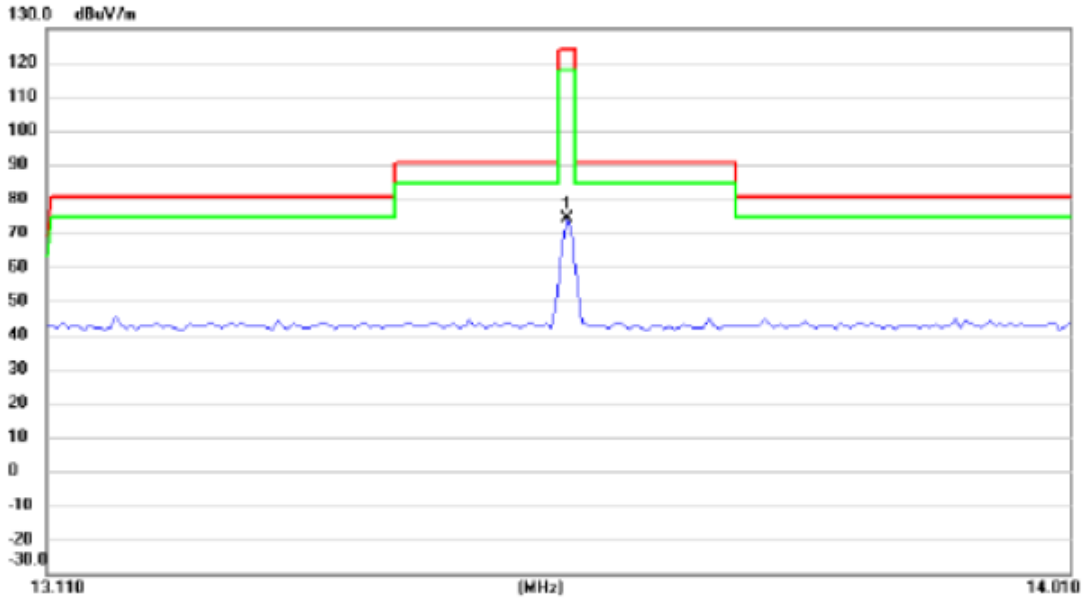
Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.2714	4.10	49.67	53.77	98.93	-45.16	AVG	
2	*	0.5685	0.50	44.21	44.71	72.51	-27.80	QP	
3		3.0615	2.65	37.99	40.64	69.54	-28.90	QP	

Test Mode: TX Mode

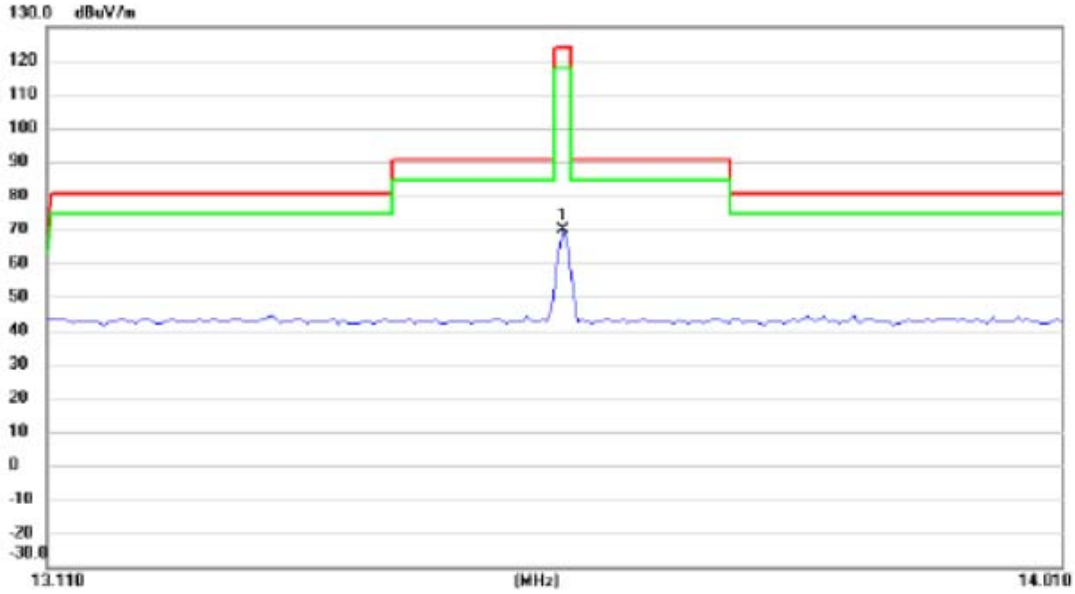
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dB μ V	dB	dB μ V/m	dB μ V/m	dB		
1	*	13.5600	36.04	37.97	74.01	124.00	-49.99	peak	

Test Mode: TX Mode

Ant 90°

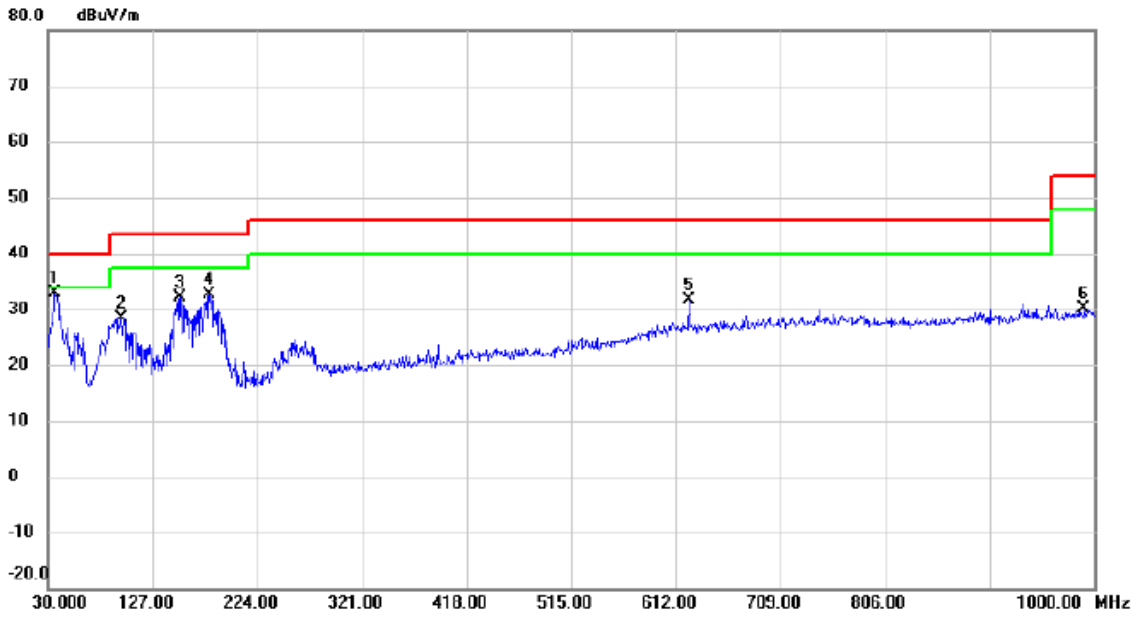


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	13.5600	32.01	37.97	69.98	124.00	-54.02	peak	

APPENDIX C - RADIATED EMISSION (30 MHZ TO 1000 MHZ)

Test Mode: TX Mode

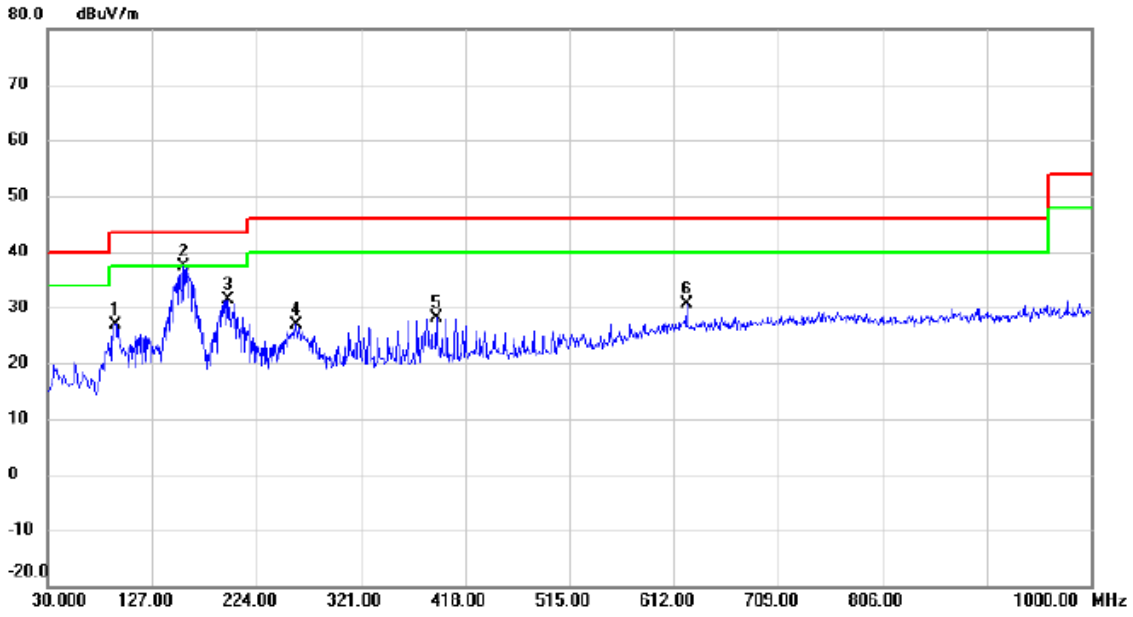
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	36.3050	48.47	-15.52	32.95	40.00	-7.05	peak	
2		98.3850	45.70	-17.31	28.39	43.50	-15.11	peak	
3		152.7050	44.25	-12.05	32.20	43.50	-11.30	peak	
4		179.8650	46.88	-14.37	32.51	43.50	-10.99	peak	
5		624.1250	37.17	-5.64	31.53	46.00	-14.47	peak	
6		990.3000	33.91	-3.82	30.09	54.00	-23.91	peak	

Test Mode: TX Mode

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		92.0800	45.01	-18.01	27.00	43.50	-16.50	peak	
2	*	155.6150	49.56	-12.19	37.37	43.50	-6.13	peak	
3		197.8100	47.59	-16.10	31.49	43.50	-12.01	peak	
4		261.3450	41.38	-14.52	26.86	46.00	-19.14	peak	
5		391.3250	39.37	-11.32	28.05	46.00	-17.95	peak	
6		624.1250	36.35	-5.64	30.71	46.00	-15.29	peak	

APPENDIX D - FREQUENCY STABILITY

Test Mode:	TX Mode
------------	---------

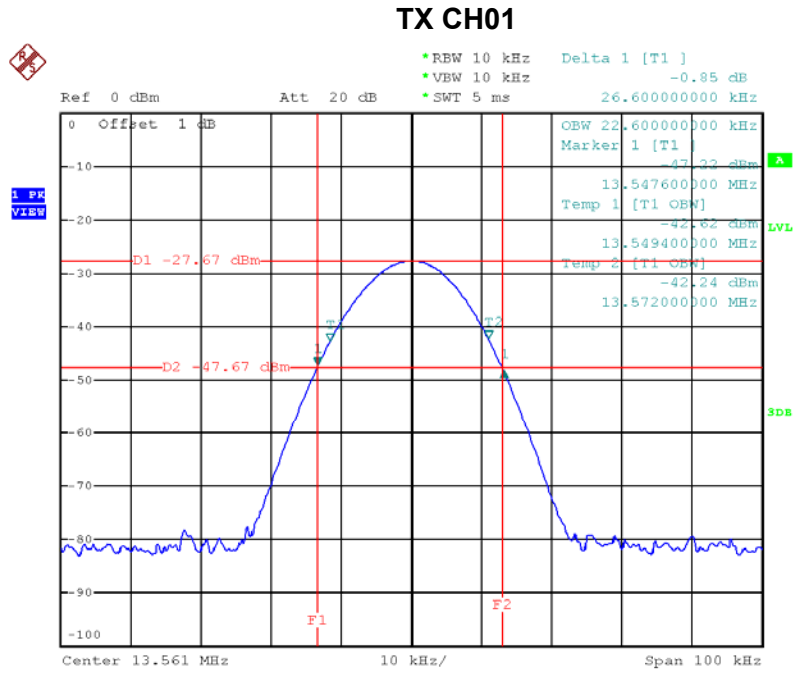
Frequency Stability Versus Environmental Temperature						
	Temperature (°C)	Voltage (DC)	Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
	25	3.7V	13.561	-		
0 min	50	3.7V	13.562	1	+/- 1.356	PASS
	-20	3.7V	13.5615	0.5	+/- 1.356	PASS
2 min	50	3.7V	13.5617	0.7	+/- 1.356	PASS
	-20	3.7V	13.5611	0.1	+/- 1.356	PASS
5 min	50	3.7V	13.5616	0.6	+/- 1.356	PASS
	-20	3.7V	13.5608	-0.2	+/- 1.356	PASS
10 min	50	3.7V	13.5614	0.4	+/- 1.356	PASS
	-20	3.7V	13.5608	-0.2	+/- 1.356	PASS

Frequency Stability Versus Input Voltage						
Temperature (°C)	Voltage (AC)		Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
25	V-nom	3.7V	13.561	-		
25	V-min	3.15V	13.5618	0.8	+/- 1.356	PASS
25	V-max	4.25V	13.5614	0.4	+/- 1.356	PASS

APPENDIX E - 20DB SPECTRUM BANDWIDTH MEASUREMENT

Test Mode: TX Mode

Frequency (MHz)	20 dB Bandwidth (KHz)	99% Occupied BW (KHz)	Test Result
CH01	26.60	22.60	Pass



Date: 10.SEP.2019 14:13:23

End of Test Report