FCC Radio Test Report

FCC ID: 2ATECVK-FR-U-1280

This report concerns: Original Grant

Project No.	:	2108C098
Equipment	:	UHF RFID fixed reader
Brand Name	:	KALEWA
Test Model	:	VK-FR-U-1280
Series Model	:	VK-FR-U-105 VK-FR-U-110 VK-FR-U-115 VK-FR-U-120 VK-FR-U-1270
Applicant	:	Shenzhen Kalewa IoT Technology Co.,Ltd
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Manufacturer	:	Shenzhen Kalewa IoT Technology Co.,Ltd
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Address	:	Room C605-606,Shenzhen Virtual University Park,Building 2,Yue Xing 3rd Road,Nanshan District, Shenzhen,Guangdong,P.R.China
Date of Receipt	:	Aug. 09, 2021
Date of Test	:	Aug. 23, 2021 ~ Oct. 09, 2021
Issued Date	:	Oct. 27, 2021
Report Version	:	R04
Test Sample	:	Engineering Sample No.: DG2021082347
Standard(s)	:	FCC Part15, Subpart C (15.249) ANSI C63.10-2013

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

Nick Chen

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TESTING CERT #5123.02

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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.

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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 are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Sep. 15, 2021
R01	Revised report to address comments	Oct. 09, 2021
R02	Revised report to address comments	Oct. 22, 2021
R03	Revised report to address comments	Oct. 26, 2021
R04	Revised report to address comments	Oct. 27, 2021

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C (15.249)				
Standard(s) Section	**Test Item**	**Test Result**	**Judgment**	**Remark**
15.207(a)	AC Power Line Conducted Emissions	Appendix A	PASS	------
15.209 15.249(a)	Radiated Emissions (Band edge& Harmonic)	Appendix B Appendix C Appendix D	PASS	------
15.215(c)	Bandwidth	APPENDIX E	PASS	------

Note:

(1) “N/A” denotes test is not applicable to this device.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of China.
BTL's Test Firm Registration Number for FCC: 357015
BTL's Designation Number for FCC: CN1240

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))
The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.68

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9kHz ~ 30MHz	-	3.02
		30MHz ~ 200MHz	V	4.36
		30MHz ~ 200MHz	H	3.32
		200MHz ~ 1,000MHz	V	4.08
		200MHz ~ 1,000MHz	H	3.96
		1GHz ~ 6GHz	-	3.80
		6GHz ~ 18GHz	-	4.82
		18GHz ~ 26.5GHz	-	3.62
		26.5GHz ~ 40GHz	-	4.00

C. Other Measurement:

Test Item	Uncertainty
Bandwidth	±3.8 %
Temperature	±0.08 °C
Humidity	±1.5%

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

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	25°C	53%	AC 120V/60Hz	Laughing Zhang
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V/60Hz	Hayden Chen
Radiated Emissions-30 MHz to 1GHz	26°C	52%	AC 120V/60Hz	Hayden Chen
Radiated Emissions-Above 1000 MHz	26°C	52%	AC 120V/60Hz	Hayden Chen
Bandwidth	25°C	60%	AC 120V/60Hz	Grani Zhou

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	UHF RFID fixed reader
Brand Name	KALEWA
Test Model	VK-FR-U-1280
Series Model	VK-FR-U-105 VK-FR-U-110 VK-FR-U-115 VK-FR-U-120 VK-FR-U-1270
Model Difference(s)	Only differ in model name.
Power Source	DC Voltage supplied from AC adapter. Manufacturer / Model: ShenZhen Teng Da Xing Electron Co., Ltd / TDX-1203000
Power Rating	I/P: 100-240V ~ 50/60Hz 2.0A O/P: 12V ⎓ 3.0A
Operation Frequency	915MHz
Modulation Technology	ASK
Field Strength	104.18 dBuV/m(Peak) 87.06 dBuV/m(AVG)

Note:

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

2. Channel List:

Channel	Frequency (MHz)
01	915

3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	N/A	9.0
2	N/A	N/A	Dipole	N/A	9.0
3	N/A	N/A	Dipole	N/A	9.0
4	N/A	N/A	Dipole	N/A	9.0

Note:

1. The antenna gain is provided by the manufacturer.
2. When the product is working, only one antenna is transmitting at a time.
3. We tested the individual transmission of each antenna and recorded the test data of the worst mode (Antenna 1).

2.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

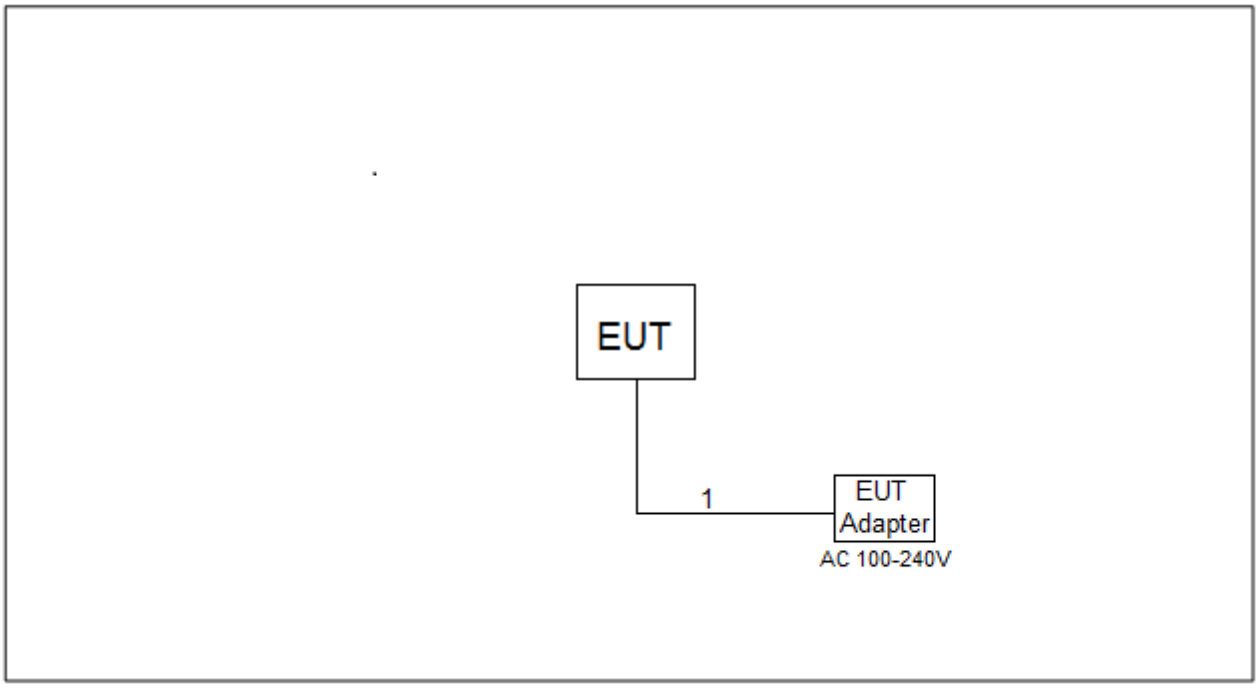
Pretest Mode	Description
Mode 1	TX CH 915MHz

2.3 PARAMETERS OF TEST SOFTWARE

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

Test Software	UHFDemo
Frequency (MHz)	915
Parameters	N/A

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 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 No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.2m

3. AC POWER LINE CONDUCTED EMISSIONS

3.1 LIMIT

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:
1. The tighter limit applies at the band edges.
2. The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

3.2 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.

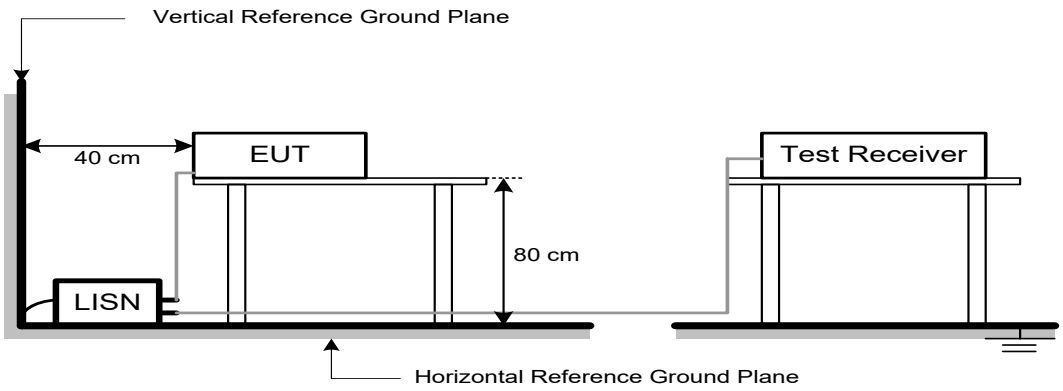
The following table is the setting of the receiver:

Receiver Parameter	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.3 DEVIATION FROM TEST STANDARD

No deviation

3.4 TEST SETUP



3.5 EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.
The EUT was programmed to be in continuously transmitting/TX mode.

3.6 TEST RESULTS

Please refer to the APPENDIX A.

4. RADIATED EMISSION TEST

4.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

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	40.0	3
88-216	43.50	3
216-960	46.0	3
Above 960	54.0	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	(dBuV/m at 3 m)	
	Peak	Average
Above 1000	74	54

Note:

(1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

4.2 TEST PROCEDURE

a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1 GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1 GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1 GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1 MHz / 3 MHz for PK value 1 MHz / 1/T Hz for AVG value

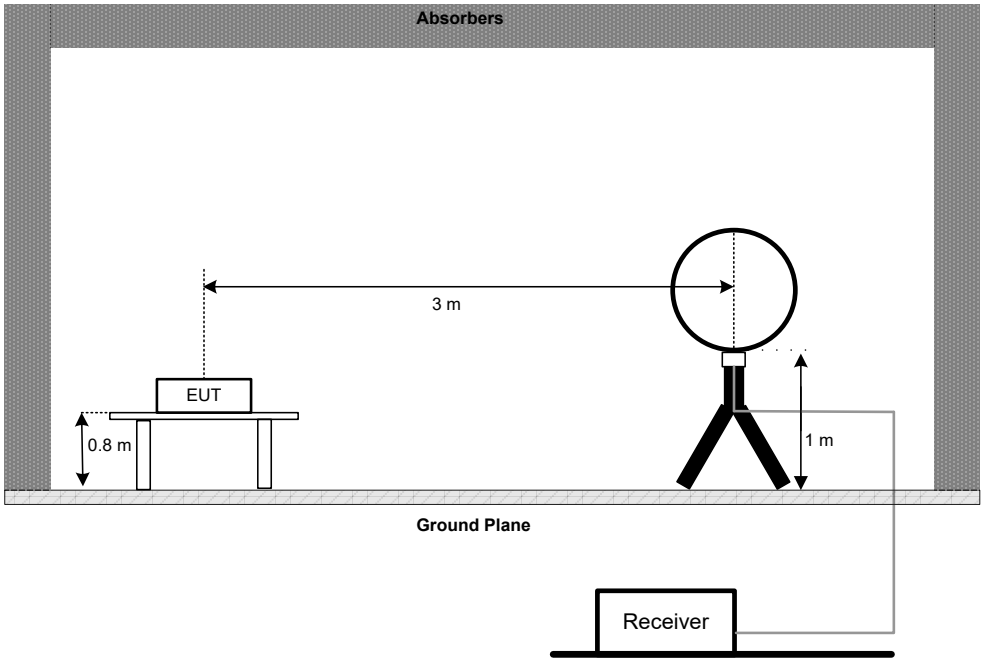
Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector

4.3 DEVIATION FROM TEST STANDARD

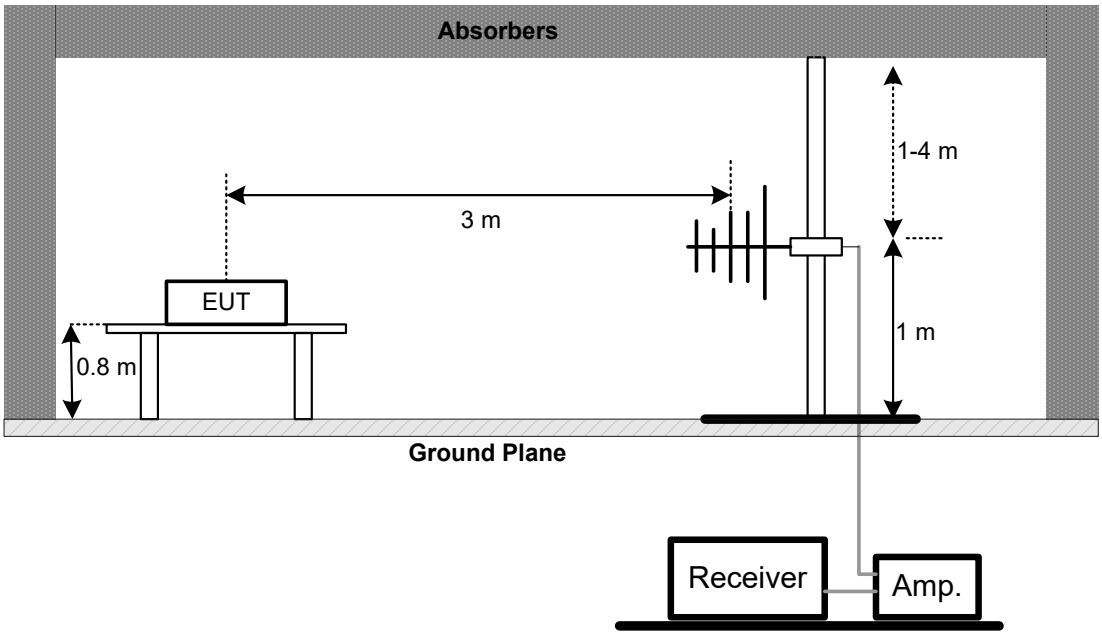
No deviation

4.4 TEST SETUP

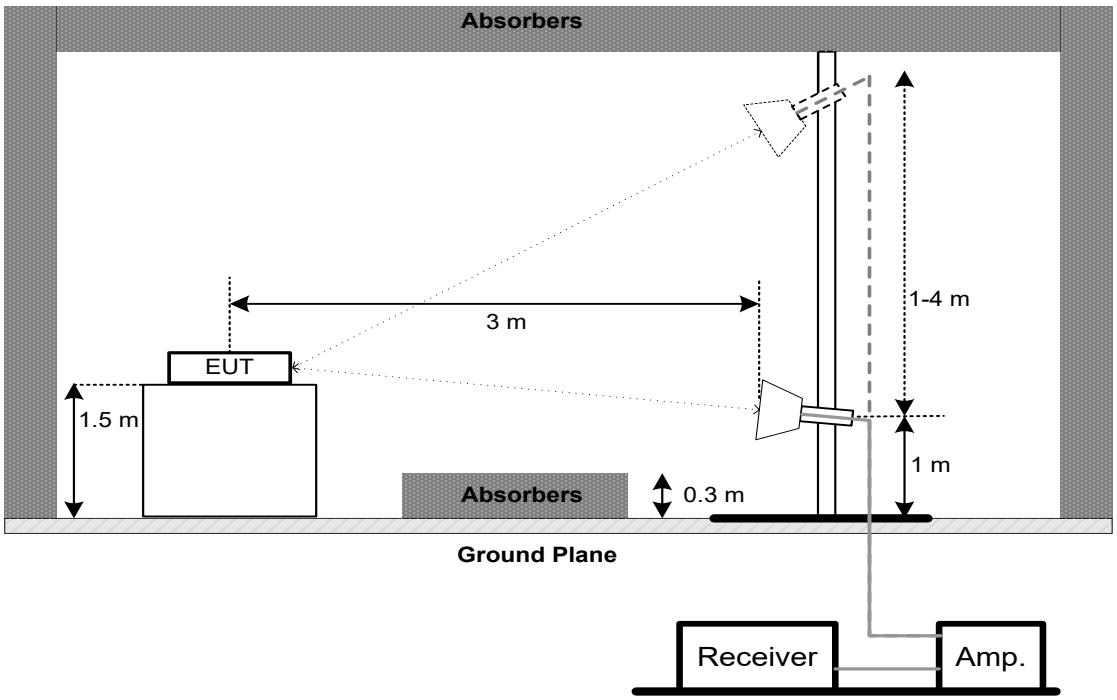
9 kHz-30 MHz



30 MHz to 1 GHz



Above 1 GHz



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULT - 9 kHz TO 30 MHz

Please refer to the APPENDIX B

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7 TEST RESULT - 30 MHz TO 1000 MHz

Please refer to the APPENDIX C.

4.8 TEST RESULT - ABOVE 1000 MHz

Please refer to the APPENDIX D.

Remark:

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

5. BANDWIDTH TEST

5.1 LIMIT

FCC Part15, Subpart C (15.249)		
Section	Test Item	Limit
15.215(c)	20 dB Bandwidth	/

5.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting : RBW= 100 kHz, VBW=300 kHz, Sweep time = Auto.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP

5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

6. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Feb. 28, 2022
2	LISN	EMCO	3816/2	52765	Feb. 27, 2022
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 27, 2022
4	50Ω Terminator	SHX	TF5-3	15041305	Feb. 27, 2022
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 09, 2022
7	643 Shield Room	ETS	6*4*3m	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Loop Antenna	EM	EM-6876-1	230	Apr. 28, 2022
2	Cable	N/A	RG 213/U	N/A	May 27, 2022
3	EMI Test Receiver	R&S	ESCI	100895	Feb. 27, 2022
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	966 Chambe Room	RM	9*6*6m	N/A	Jul. 26, 2022

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 15, 2022
2	Amplifier	HP	8447D	2944A08742	Feb. 28, 2022
3	Receiver	Agilent	N9038A	MY52130039	Mar. 19, 2022
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 20, 2022
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
8	966 Chambe Room	RM	9*6*6m	N/A	Jul. 26, 2022

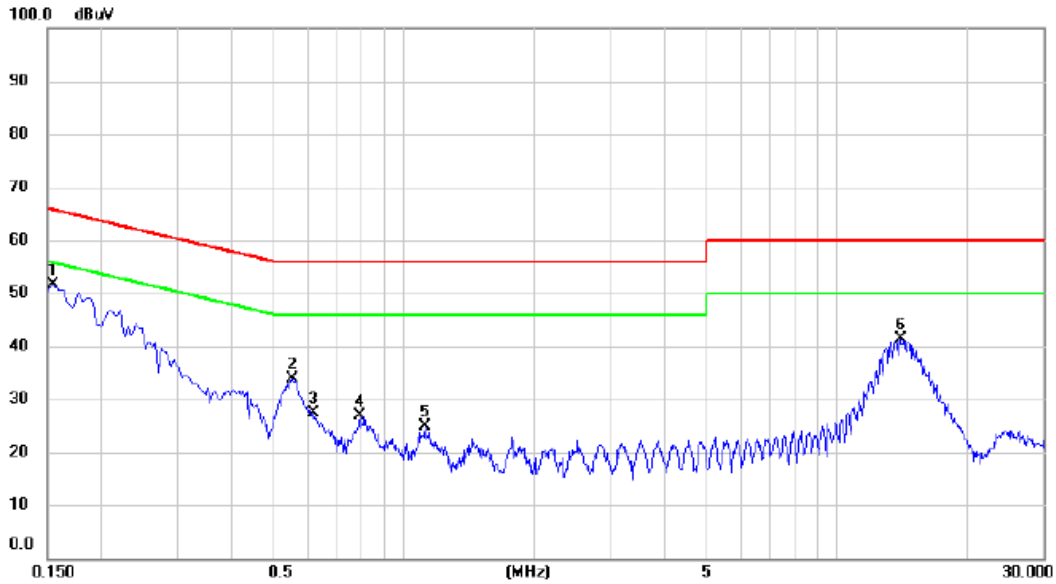
Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	May 10, 2022
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2022
3	Amplifier	Agilent	8449B	3008A02584	Jul. 10, 2022
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Feb. 28, 2022
5	Receiver	Agilent	N9038A	MY52130039	Mar. 19, 2022
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	N/A	EMC104-SM-SM-6 000	N/A	Oct. 16, 2021
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	Filter	STI	STI15-9912	N/A	Jul. 10, 2022
11	966 Chambe Room	RM	9*6*6m	N/A	Jul. 26, 2022

Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 10, 2022
2	Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 07, 2022
3	RF Cable	Tongkaichuan	N/A	N/A	N/A
4	DC Block	Mini	N/A	N/A	N/A

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

APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

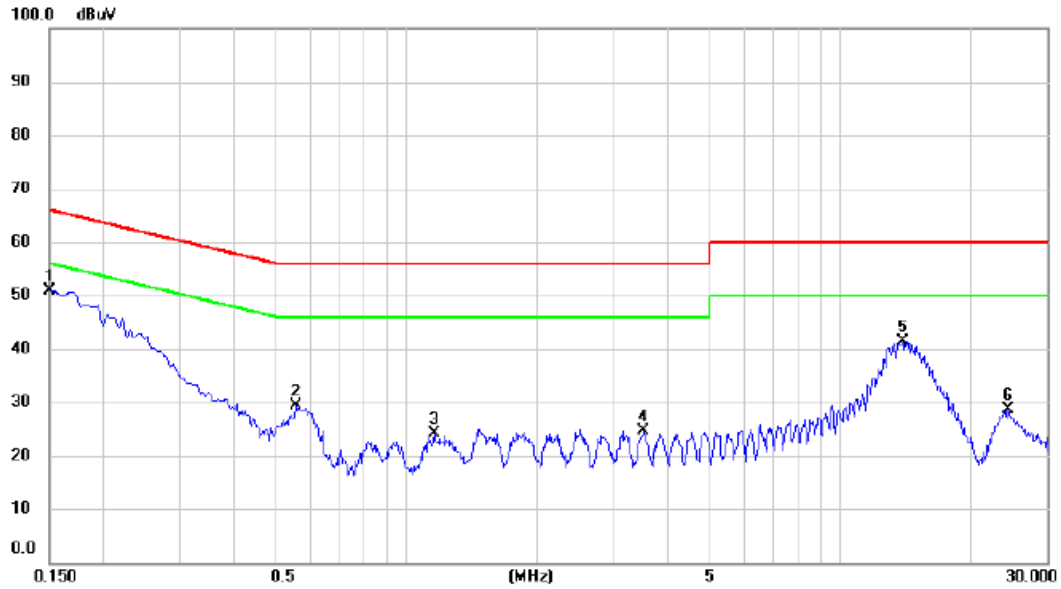
Test Mode:	TX CH 915 MHz	Phase	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1545	41.93	9.70	51.63	65.75	-14.12	peak	
2		0.5505	23.90	9.94	33.84	56.00	-22.16	peak	
3		0.6180	17.47	9.92	27.39	56.00	-28.61	peak	
4		0.7935	16.91	9.95	26.86	56.00	-29.14	peak	
5		1.1220	14.88	9.99	24.87	56.00	-31.13	peak	
6		14.0505	30.45	10.83	41.28	60.00	-18.72	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) The test result has included the cable loss.

Test Mode:	TX CH 915 MHz	Phase	Neutral



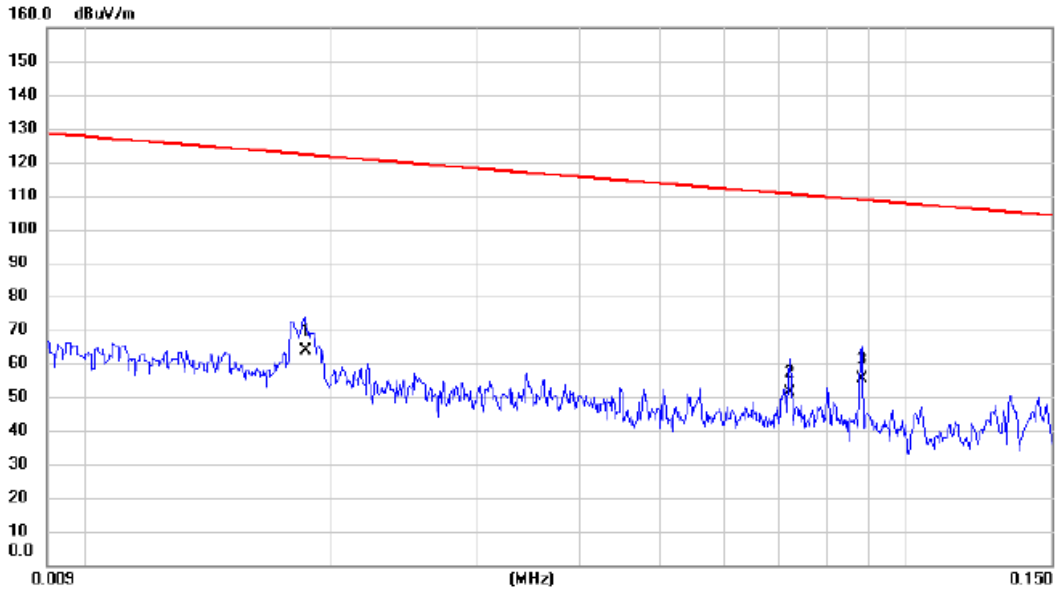
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	41.21	9.74	50.95	66.00	-15.05	peak	
2		0.5550	19.25	10.15	29.40	56.00	-26.60	peak	
3		1.1580	13.81	10.29	24.10	56.00	-31.90	peak	
4		3.5160	14.07	10.52	24.59	56.00	-31.41	peak	
5		13.9875	30.35	11.06	41.41	60.00	-18.59	peak	
6		24.4410	17.39	11.34	28.73	60.00	-31.27	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) The test result has included the cable loss.

APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode:	TX CH 915 MHz

Ant 0°

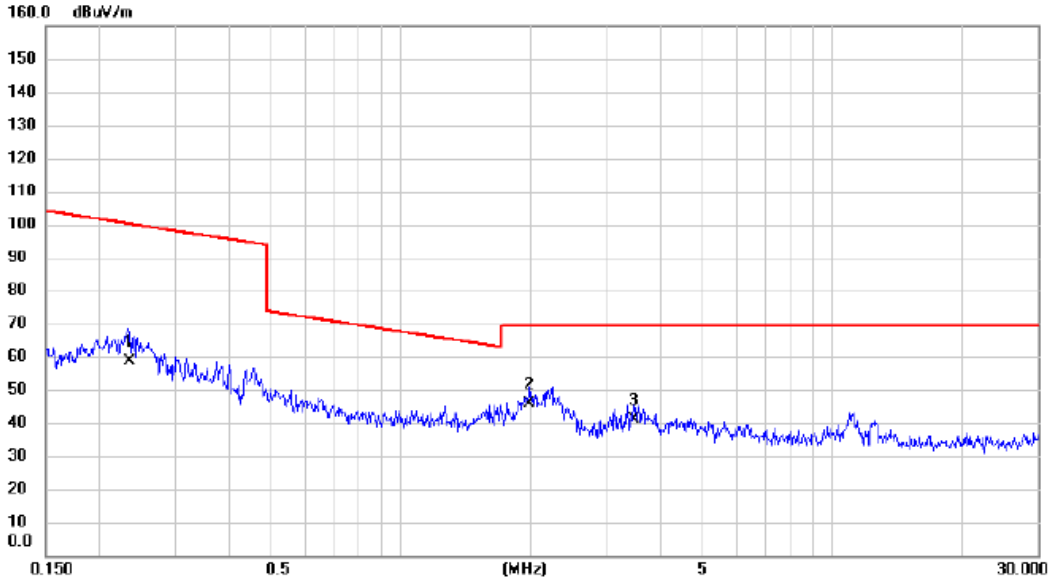


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.0186	49.12	14.85	63.97	122.21	-58.24	AVG			
2		0.0720	37.64	13.73	51.37	110.46	-59.09	AVG			
3	*	0.0881	41.58	13.77	55.35	108.71	-53.36	AVG			

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX CH 915 MHz

Ant 0°

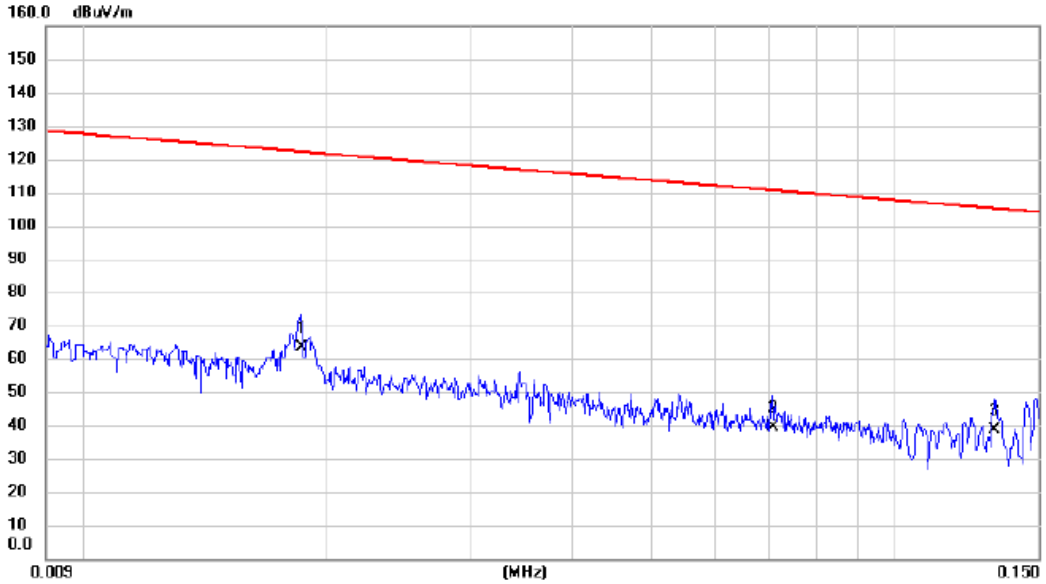


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.2341	44.86	13.74	58.60	100.22	-41.62	AVG			
2	*	1.9906	33.67	12.25	45.92	69.54	-23.62	QP			
3		3.4722	28.94	11.99	40.93	69.54	-28.61	QP			

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX CH 915 MHz

Ant 90°

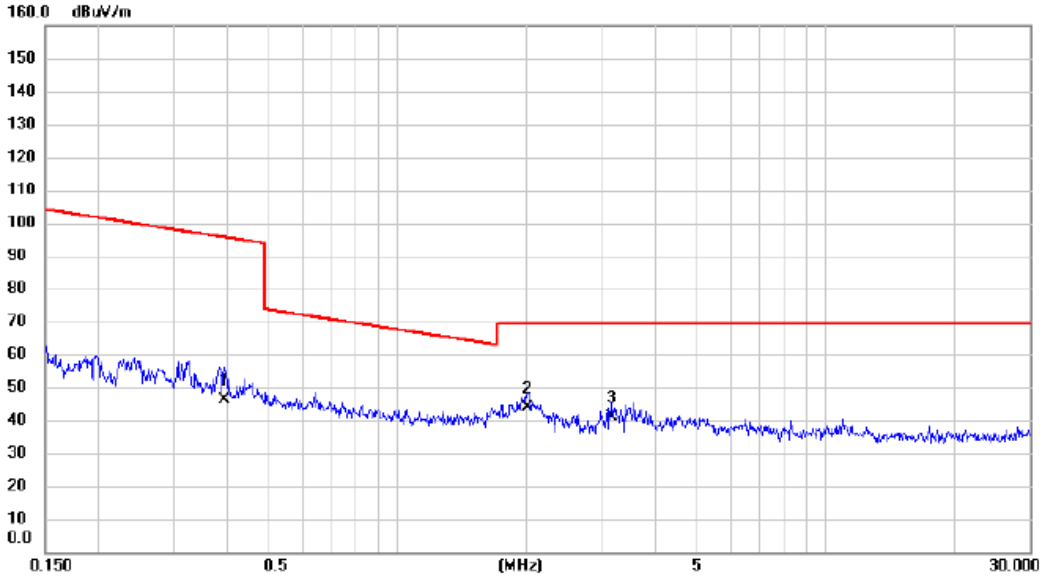


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	0.0186	48.56	14.85	63.41	122.21	-58.80	AVG			
2		0.0706	25.78	13.73	39.51	110.63	-71.12	AVG			
3		0.1324	24.93	13.78	38.71	105.17	-66.46	AVG			

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX CH 915 MHz

Ant 90°



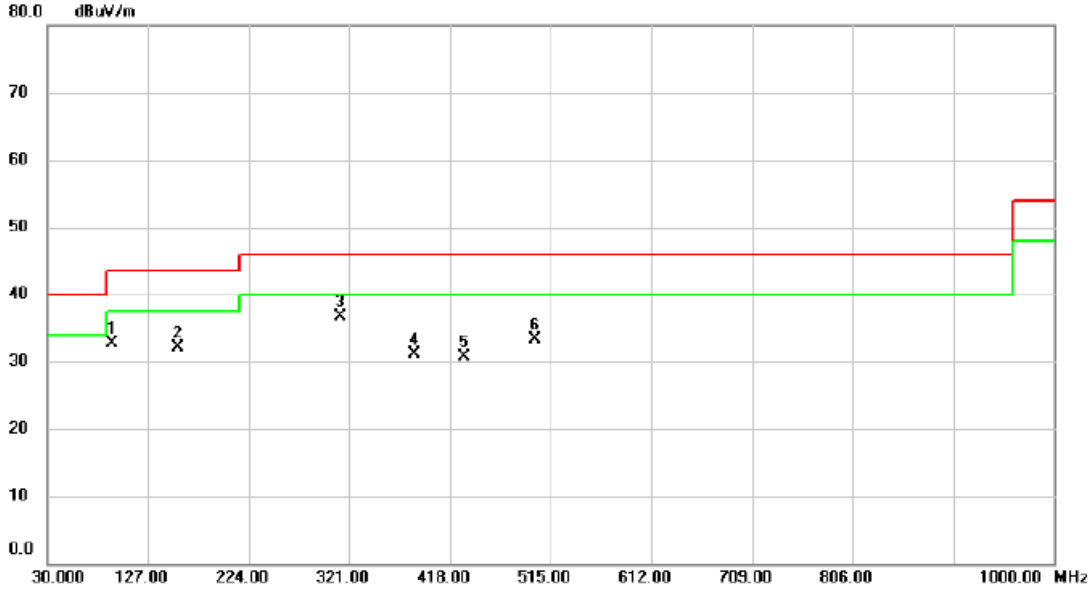
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.3933	32.69	13.64	46.33	95.71	-49.38	AVG			
2	*	2.0120	31.42	12.24	43.66	69.54	-25.88	QP			
3		3.1731	28.97	11.97	40.94	69.54	-28.60	QP			

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode:	TX CH 915 MHz

Vertical

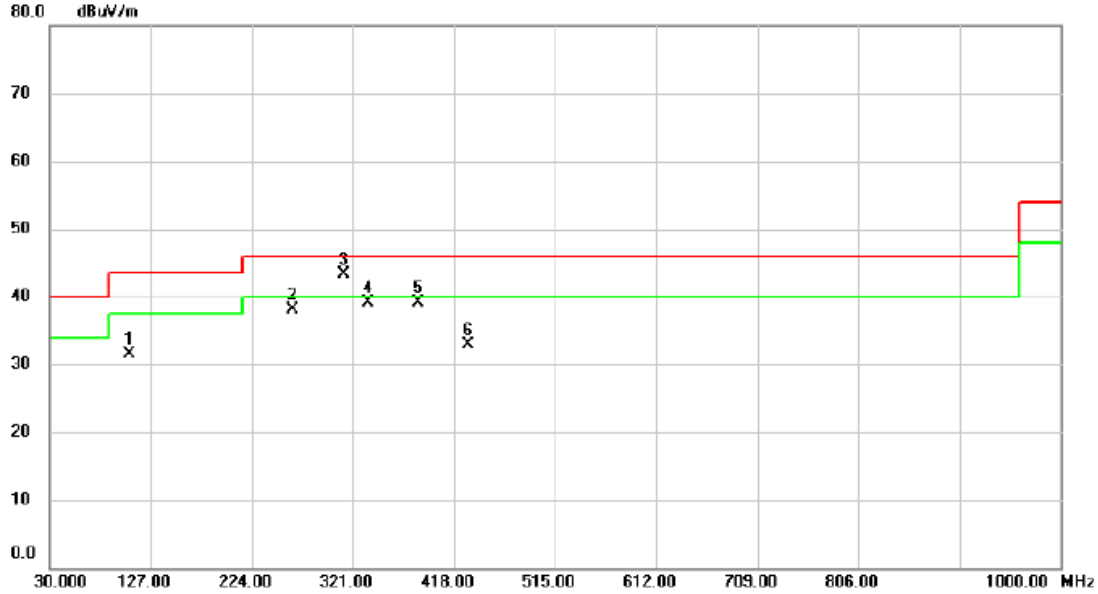


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		92.080	50.84	-18.07	32.77	43.50	-10.73	peak	
2		156.100	44.67	-12.47	32.20	43.50	-11.30	peak	
3	*	312.270	47.35	-10.66	36.69	46.00	-9.31	peak	
4		384.050	40.30	-9.15	31.15	46.00	-14.85	peak	
5		431.580	38.65	-7.91	30.74	46.00	-15.26	peak	
6		500.450	39.84	-6.54	33.30	46.00	-12.70	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX CH 915 MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		106.630	46.97	-15.55	31.42	43.50	-12.08	peak	
2		263.770	50.52	-12.41	38.11	46.00	-7.89	peak	
3	*	312.270	54.02	-10.66	43.36	46.00	-2.64	peak	
4		335.550	49.31	-10.23	39.08	46.00	-6.92	peak	
5		384.050	48.25	-9.15	39.10	46.00	-6.90	peak	
6		431.580	40.75	-7.91	32.84	46.00	-13.16	peak	

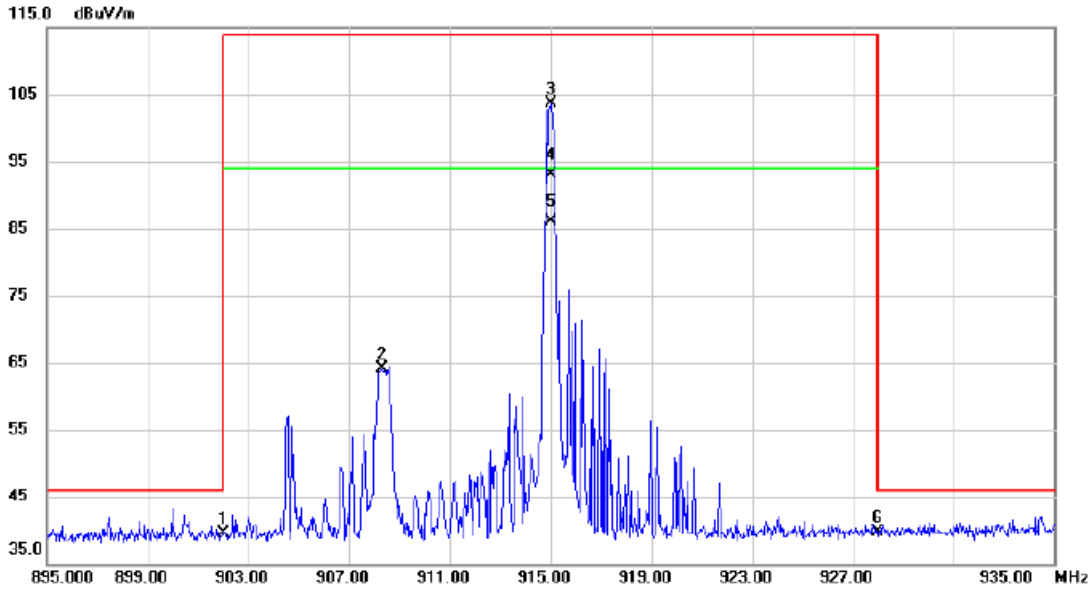
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

Band Edge

Test Mode:	TX CH 915 MHz

Vertical

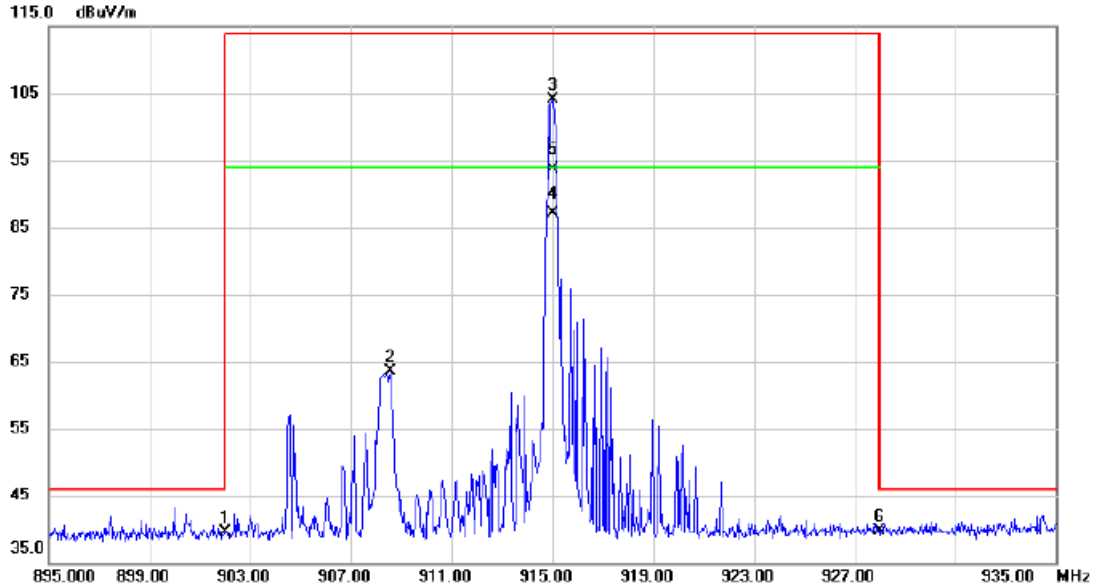


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		902.000	39.21	0.34	39.55	46.00	-6.45	peak	
2		908.320	63.53	0.54	64.07	114.00	-49.93	peak	
3		915.000	102.95	0.73	103.68	114.00	-10.32	peak	
4	*	915.000	92.38	0.73	93.11	94.00	-0.89	QP	
5		915.000	85.42	0.73	86.15	94.00	-7.85	AVG	
6		928.000	38.53	1.13	39.66	46.00	-6.34	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) AVG is the measured value.

Test Mode:	TX CH 915 MHz

Horizontal



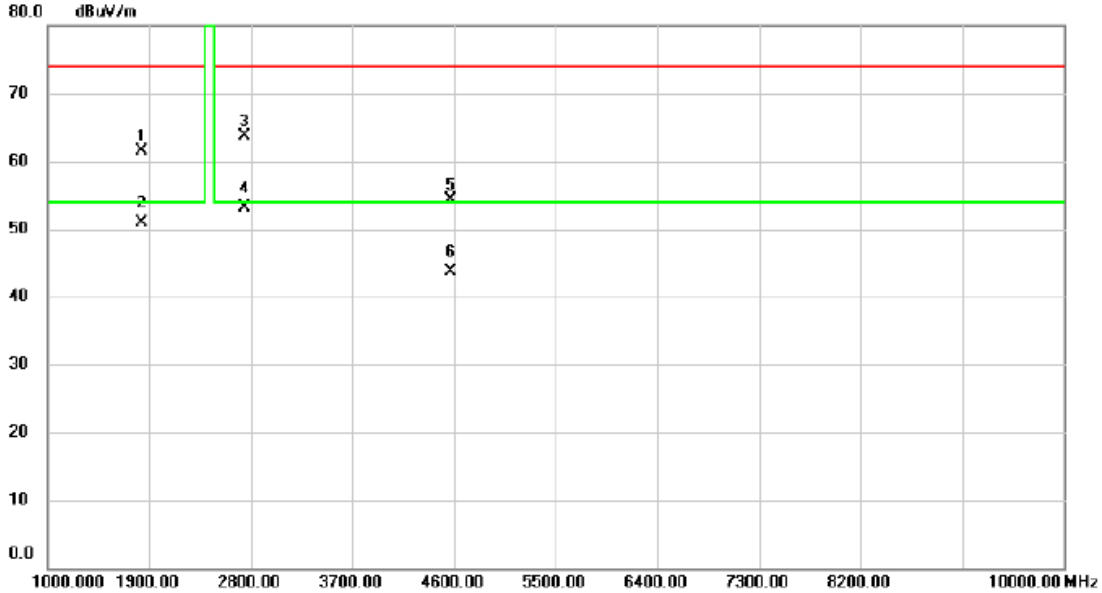
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		902.000	39.21	0.34	39.55	46.00	-6.45	peak	
2		908.560	62.88	0.54	63.42	114.00	-50.58	peak	
3		915.000	103.45	0.73	104.18	114.00	-9.82	peak	
4		915.000	86.33	0.73	87.06	94.00	-6.94	AVG	
5	*	915.000	92.88	0.73	93.61	94.00	-0.39	QP	
6		928.000	38.53	1.13	39.66	46.00	-6.34	peak	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) AVG is the measured value.

Harmonic

Test Mode:	TX CH 915 MHz

Vertical

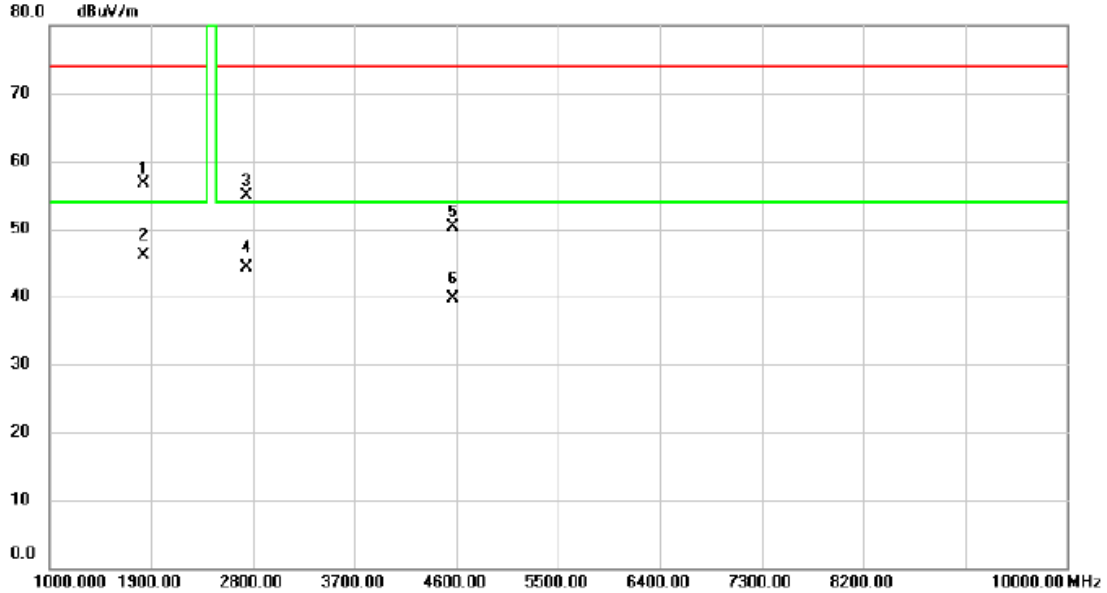


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		1828.000	64.97	-3.55	61.42	74.00	-12.58	peak	
2		1828.000	54.40	-3.55	50.85	54.00	-3.15	AVG	
3		2746.000	64.40	-0.70	63.70	74.00	-10.30	peak	
4	*	2746.000	53.83	-0.70	53.13	54.00	-0.87	AVG	
5		4573.000	50.33	3.96	54.29	74.00	-19.71	peak	
6		4573.000	39.77	3.96	43.73	54.00	-10.27	AVG	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) AVG is the measured value.

Test Mode:	TX CH 915 MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		1828.000	60.27	-3.55	56.72	74.00	-17.28	peak	
2	*	1828.000	49.71	-3.55	46.16	54.00	-7.84	AVG	
3		2746.000	55.62	-0.70	54.92	74.00	-19.08	peak	
4		2746.000	45.05	-0.70	44.35	54.00	-9.65	AVG	
5		4573.000	46.37	3.96	50.33	74.00	-23.67	peak	
6		4573.000	35.81	3.96	39.77	54.00	-14.23	AVG	

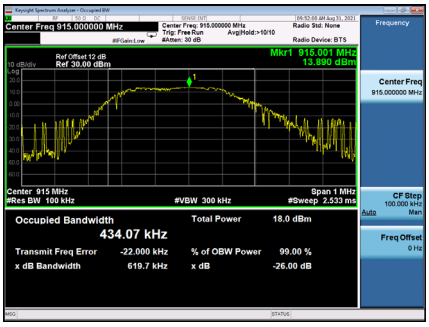
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) AVG is the measured value.

APPENDIX E - BANDWIDTH

Test Mode:	TX CH 915 MHz

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	Limit (kHz)	Result
01	915 MHz	619.7	No Limit	Complies

CH01



End of Test Report