

TEST REPORT



DT&C Co., Ltd.

42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea, 17042
Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC2208-0139

2. Customer

• Name (FCC) : Continental Automotive Korea Ltd.

Name (IC) : Continental Automotive Korea Ltd.

• Address (FCC) : 220, Pangyoyeok-ro, Bundang-gu Seongnam-si, Gyeonggi-do
South Korea 13493

Address (IC) : 220, Pangyoyeok-ro, Bundang-gu Seongnam-si Gyeonggi-do 13493
Korea (Republic Of)

3. Use of Report : FCC & IC Certification

4. Product Name / Model Name : SVI-MQ4aMFGE04 / SVI-MQ4aMFGE04

FCC ID : SY5MQ4AMFGE04

IC : 8325A-MQ4AMFGE04

5. FCC Regulation(s): Part 15.231

IC Standard(s): RSS-210 Issue 10, RSS-Gen Issue 5

Test Method used: ANSI C63.10-2013

6. Date of Test : 2022.08.01 ~ 2022.08.24



7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing

8. Testing Environment : See appended test report.

9. Test Result : Refer to the attached test result.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Technical Manager
	Name : SeungMin Gil 	Name : JaeJin Lee  (Signature)

2022 . 08 . 25 .

DT&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2208-0139	Aug. 25, 2022	Initial issue	SeungMin Gil	JaeJin Lee

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1. General Information

1.1. Description of EUT

Equipment Class	Part 15 Security/Remote Control Transmitter (DSC)
Product Name	SVI-MQ4aMFGE04
Model Name	SVI-MQ4aMFGE04
Add Model Name	-
Firmware Version Identification Number	1.0
EUT Serial Number	Conducted: 4Ba IC C1, Radiated: 4Ba IC R1, 4Ba IC N1
Power Supply	DC 3 V
Frequency Range	433.92 MHz
Modulation Type	FSK
Antenna Type	PCB Pattern Antenna

1.2. Testing Laboratory

DT&C Co., Ltd.		
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.		
The test site complies with the requirements of Part 2.948 according to ANSI C63.4-2014.		
- FCC & IC MRA Designation No. : KR0034		
- ISED#: 5740A		
www.dtnet.net		
Telephone	:	+ 82-31-321-2664
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1.3. Testing Environment

Ambient Condition	
▪ Temperature	+23 °C ~ +25 °C
▪ Relative Humidity	35 % ~ 45 %

1.4. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.4-2014 and ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Radiated emission (1 GHz Below)	4.9 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (1 GHz ~ 18 GHz)	5.0 dB (The confidence level is about 95 %, $k = 2$)

1.5. Test Equipment List

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	22/06/24	23/06/24	US47360812
Spectrum Analyzer	Agilent Technologies	N9020A	21/12/16	22/12/16	MY48010133
DC Power Supply	Agilent Technologies	66332A	22/06/24	23/06/24	US37473422
Multimeter	FLUKE	17B+	21/12/16	22/12/16	36390701WS
Signal Generator	Rohde Schwarz	SMBV100A	21/12/16	22/12/16	255571
Thermohygrometer	BODYCOM	BJ5478	21/12/16	22/12/16	120612-1
Thermohygrometer	BODYCOM	BJ5478	21/12/16	22/12/16	120612-2
Loop Antenna	ETS-Lindgren	6502	21/01/28	23/01/28	00226186
Hybrid Antenna	Schwarzbeck	VULB 9160	21/12/16	22/12/16	3362
Horn Antenna	ETS-Lindgren	3117	21/12/16	22/12/16	00140394
PreAmplifier	Agilent Technologies	8449B	22/06/24	23/06/24	3008A02108
PreAmplifier	H.P	8447D	21/12/16	22/12/16	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	22/06/24	23/06/24	7
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	22/06/24	23/06/24	2
Cable	HUBER+SUHNER	SUCOFLEX100	22/01/04	23/01/04	M-01
Cable	HUBER+SUHNER	SUCOFLEX100	22/01/04	23/01/04	M-02
Cable	JUNFLON	MWX241/B	22/01/04	23/01/04	M-03
Cable	JUNFLON	MWX221	22/01/04	23/01/04	M-04
Cable	JUNFLON	MWX221	22/01/04	23/01/04	M-05
Cable	JUNFLON	J12J101757-00	22/01/04	23/01/04	M-07
Cable	HUBER+SUHNER	SUCOFLEX104	22/01/04	23/01/04	M-08
Cable	HUBER+SUHNER	SUCOFLEX106	22/01/04	23/01/04	M-09
Cable	DTNC	Cable	22/06/08	23/06/08	M-10
Cable	DT&C	Cable	22/01/04	23/01/04	RFC-45
Test Software	tsj	Radiated Emission Measurement	NA	NA	Version 2.00.0177

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017

Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

2. Antenna Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions.

Conclusion: Comply

The antenna is permanently attached on the PCB.

Therefore this E.U.T complies with the requirement of Part 15.203

3. Summary of Test Results

FCC Part Section(s)	RSS section(s)	Parameter	Test Condition	Status Note 1
15.231(b)	RSS-210[A.1.2]	Field strength of fundamental	Radiated	C Note 3
15.231(b) 15.205 15.209	RSS-210[A.1.2] RSS-Gen [8.9] RSS-Gen [8.10]	Field strength of spurious emissions		C Note 3
15.231(a)	RSS-210[A.1.1]	Transmission Cease Time		C
15.231(c)	-	20 dB bandwidth	Conducted	C
-	RSS-210[A.1.3]	Occupied bandwidth		C
15.207	RSS-Gen[8.8]	AC Power Line Conducted Emission	AC Line Conducted	NA Note 4
15.203	-	Antenna Requirements	-	C

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable

Note 2: For radiated emission tests below 30 MHz were performed on semi-anechoic chamber which is correlated with OATS.

Note 3: This test item was performed in three orthogonal EUT positions and the worst case data was reported.

Note 4: This device does not have a port to connect to the AC line.

4. Information about test items

4.1. Operating mode

Operating Mode 1	This device was tested with continuous TX mode for field strength and 20dB Bandwidth measurements.
Operating Mode 2	Normal operating mode was used for transmission cease time measurement.

4.2. Tested frequency

Mode	Frequency(MHz)
Transmitting mode	433.92
-	-

4.3. Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
-	-	-	-	-

4.4. EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing
→ None

5. Test Result

5.1. 20 dB & Occupied bandwidth

- Test Procedure:

ANSI C63.10-2013 Section 6.9.2

The 20 dB Bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

1. Center frequency = EUT channel center frequency
2. Span = 2 ~ 5 times the OBW
3. RBW = 1 % ~ 5 % OBW
4. VBW $\geq 3 \times$ RBW
5. Detector = Peak
6. Trace = Max hold
7. The trace was allowed to stabilize
8. Determine the reference value = Set the spectrum analyzer marker to the highest level of the displayed trace
9. Using the marker-delta function of the instrument, determine the “-xx dB down amplitude” using [(reference value) - xx].
10. Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

- Limit:

Part 15.231(c)

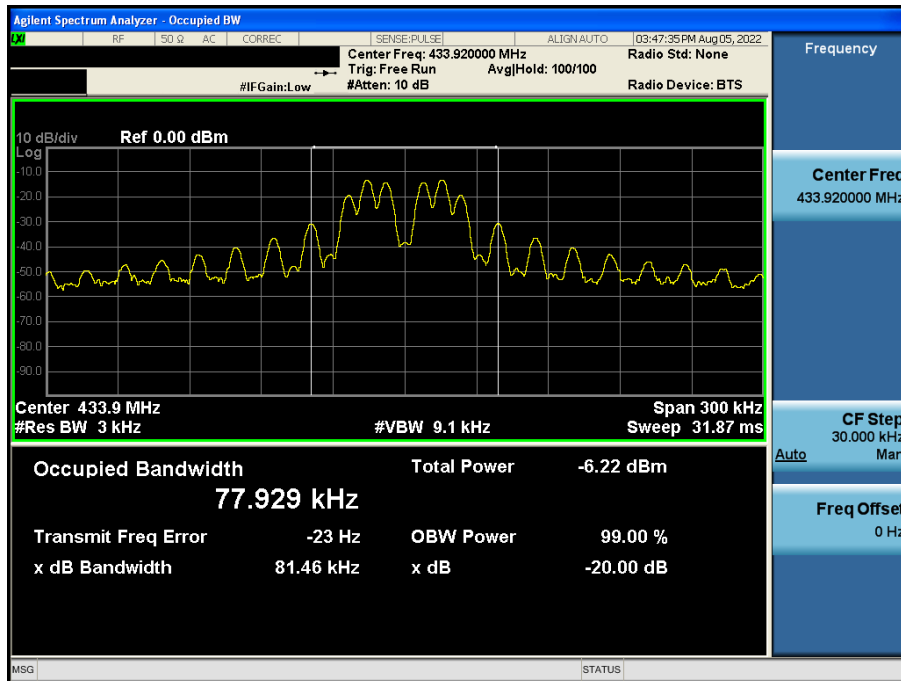
The bandwidth of the emission shall be no wider than 0.25 % of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5 % of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

RSS-210[A.1.3]

The occupied bandwidth of momentarily operated devices shall be less than or equal to 0.25% of the centre frequency for devices operating between 70 MHz and 900 MHz. For devices operating above 900 MHz, the occupied bandwidth shall be less than or equal to 0.5% of the centre frequency.

- Measurement Data: **Comply**

Frequency (MHz)	20 dB Bandwidth (kHz)	99 % Bandwidth (kHz)	Limit (kHz)
433.92	81.46	77.93	1 084.80



5.2. Transmission Cease Time

- Limit:

Part 15.231(a)

(a) The provisions of this section are restricted to periodic operation within the band 40.66 MHz - 40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

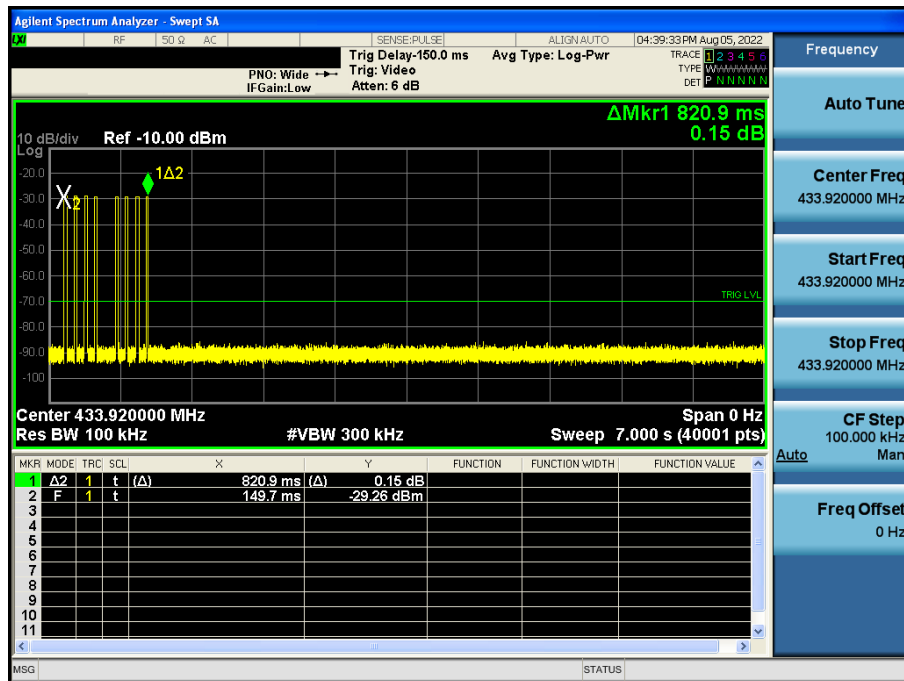
- (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
- (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.
- (3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.
- (4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition
- (5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

RSS-210[A.1.1]

Devices shall comply with the following requirements:

- (a) A manually operated transmitter shall be equipped with a push-to-operate switch and be under manual control at all times during transmission. When released, the transmitter shall cease transmission within no more than 5 seconds of being released.
- (b) A transmitter that has been activated automatically shall cease transmission within 5 seconds of activation. (c) Periodic transmissions at regular, predetermined intervals are not permitted, except as specified in section A.1.4. However, polling or supervision transmissions that determine system integrity of transmitters used in security or safety applications are permitted, provided the total duration of transmission does not exceed 2 seconds per hour for each transmitter.
- (d) Intentional radiators used for radio control during emergencies involving fire, security of goods (e.g. burglar alarms) and safety-of-life, when activated to signal an alarm, may operate during the interval of the alarm condition.

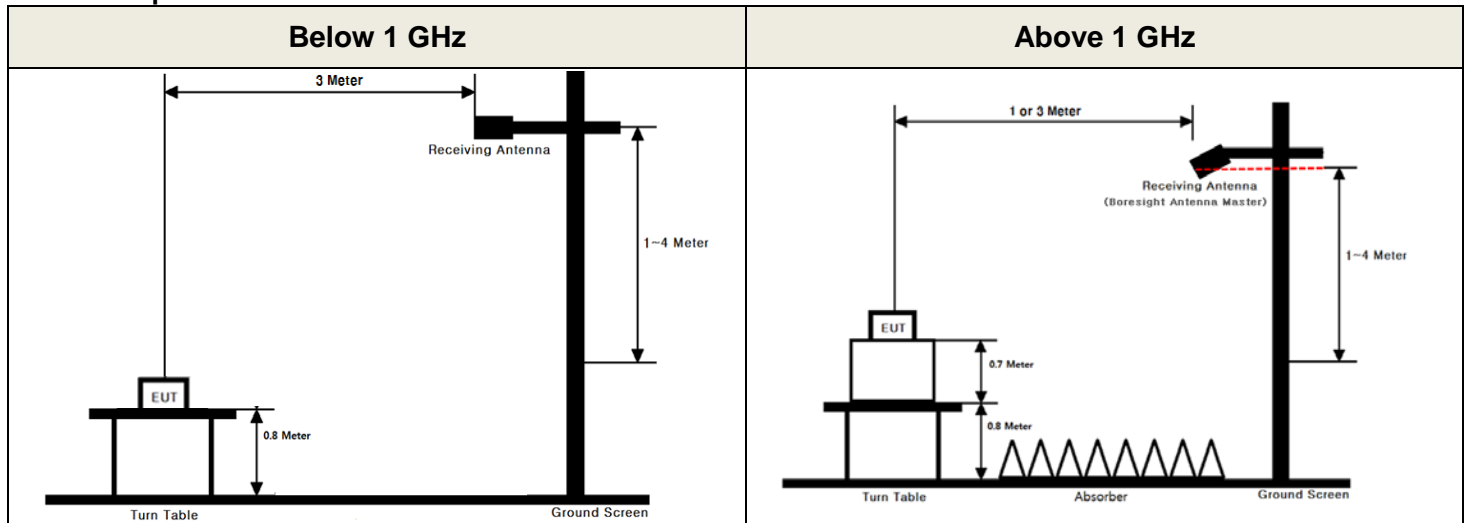
- Measurement Data:



Transmission Cease Time (s)	Limit (s)
0.821	5.0

5.3. Field strength of fundamental and spurious emissions

- Test Setup



- Test Procedure

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The table was rotated 360 degrees to determine the position of the highest radiation.
3. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 1 or 3 meter away from the interference-receiving antenna.
4. For measurements above 1GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.
5. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
6. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
7. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
8. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Measurement Instrument Setting

1. Frequency Range Below 1 GHz
 RBW = 100 or 120 kHz, VBW = 3 x RBW, Detector = Peak or Quasi Peak
 Note: For fundamental field strength measurements, the RBW(200kHz) was set enough larger than occupied bandwidth.
2. Frequency Range Range > 1 GHz
 Peak Measurement
 RBW = 1 MHz, VBW = 3 MHz, Detector = Peak, Sweep time = Auto, Trace mode = Max Hold until the trace stabilizes
 Average Measurement> 1GHz
 The result of Average measurement is calculated using PK result and duty cycle correction factor.
 Note: Please refer to the appendix I for duty cycle correction factor.

- Limit

Part 15.231(b), In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Frequency [MHz]	Field Strength of Fundamental Frequency [uV/m]	Field Strength of Spurious Emissions [uV/m]
40.66 ~ 40.70	2,250	225
70 ~ 130	1,250	125
130 ~ 174	¹ 1,250 to 3,750	¹ 125 to 375
174 ~ 260	3,750	375
260 ~ 470	¹3,750 to 12,500	¹375 to 1,250
Above 470	12,500	1,250

¹Linear interpolations

- (1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.
- (2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.
- (3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

RSS-210[A.1.4]

(a) The field strength of emissions from momentarily operated intentional radiators shall not exceed the limits in table A1, based on the average value of the measured emissions. The requirements of the "Pulsed operation" section of RSS-Gen apply for averaging pulsed emissions and limiting peak emissions. Alternatively, compliance with the limits in table A1 may be demonstrated using an International Special Committee on Radio Interference (CISPR) quasi-peak detector.

(b) Unwanted emissions shall be 10 times below the fundamental emissions field strength limits in table A1 or comply with the limits specified in RSS-Gen, whichever is less stringent.

Table A1 — Permissible field strength limits for momentarily operated devices

Fundamental frequency (MHz), excluding restricted frequency bands specified in RSS-Gen	Field strength of the fundamental emissions (uV/m at 3 m)
70 ~ 130	1,250
130 ~ 174	1,250 to 3,750*
174 ~ 260**	3,750
260 ~ 470**	3,750 to 12,500*
Above 470	12,500

* Linear interpolation with frequency, f, in MHz:

- For 130-174 MHz: Field Strength (uV/m) = (56.82 x f)-6136
- For 260-470 MHz: Field Strength (uV/m) = (41.67 x f)-7083

** Frequency bands 225-328.6 MHz and 335.4-399.9 MHz are designated for the exclusive use of the Government of Canada. Manufacturers should be aware of possible harmful interference and degradation of their licence-exempt radio equipment in these frequency bands.

- Part 15.209 & RSS-Gen[8.9]: General requirement

Frequency (MHz)	FCC Limit (uV/m)	IC Limit (uA/m)	Measurement Distance (m)
0.009 – 0.490	2 400 / F (kHz)	6.37/F (F in kHz)	300
0.490 – 1.705	24 000 / F (kHz)	63.7/F (F in kHz)	30
1.705 – 30.0	30	0.08	30

Frequency (MHz)	FCC Limit (uV/m)	IC Limit (uV/m)	Measurement Distance (m)
30 ~ 88	100 **	100	3
88 ~ 216	150 **	150	3
216 ~ 960	200 **	200	3
Above 960	500	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.

- Part 15.205(a): Restricted band of operation

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.414 25 ~ 8.414 75	108 ~ 121.94	1 300 ~ 1 427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1 435 ~ 1 626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.173 5 ~ 2.190 5	12.519 75 ~ 12.520 25	149.9 ~ 150.05	1 645.5 ~ 1 646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.576 75 ~ 12.577 25	156.524 75 ~ 156.525 25	1 660 ~ 1 710	8.025 ~ 8.5	22.01 ~ 23.12
4.177 25 ~ 4.177 75	13.36 ~ 13.41	156.7 ~ 156.9	1 718.8 ~ 1 722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.207 25 ~ 4.207 75	16.42 ~ 16.423	162.012 5 ~ 167.17	2 200 ~ 2 300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.694 75 ~ 16.695 25	167.72 ~ 173.2	2 310 ~ 2 390	10.6 ~ 12.7	36.43 ~ 36.5
6.267 75 ~ 6.268 25	16.804 25 ~ 16.804 75	240 ~ 285	2 483.5 ~ 2 500	13.25 ~ 13.4	Above 38.6
6.311 75 ~ 6.312 25	25.5 ~ 25.67	322 ~ 335.4	2 655 ~ 2 900		
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3 260 ~ 3 267		
8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3 332 ~ 3 339		
8.376 25 ~ 8.386 75	74.8 ~ 75.2	960 ~ 1 240	3 345.8 ~ 3 358		
			3 600 ~ 4 400		

- RSS-Gen[8.10]: Restricted frequency bands

MHz	MHz	MHz	MHz	MHz	GHz
0.090 ~ 0.110	8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3 345.8 ~ 3 358	9.0 ~ 9.2
0.495 ~ 0.505	8.376 25 ~ 8.386 75	74.8 ~ 75.2	960 ~ 1 427	3 500 ~ 4 400	9.3 ~ 9.5
2.173 5 ~ 2.190 5	8.414 25 ~ 8.414 75	108 ~ 138	1 435 ~ 1 626.5	4 500 ~ 5 150	10.6 ~ 12.7
3.020 ~ 3.026	12.29 ~ 12.293	149.9 ~ 150.05	1 645.5 ~ 1 646.5	5 350 ~ 5 460	13.25 ~ 13.4
4.125 ~ 4.128	12.519 75 ~ 12.520 25	156.524 75 ~	1 660 ~ 1 710	7 250 ~ 7 750	14.47 ~ 14.5
4.177 25 ~ 4.177 75	12.576 75 ~ 12.577 25	156.525 25	1 718.8 ~ 1 722.2	8 025 ~ 8 500	15.35 ~ 16.2
4.207 25 ~ 4.207 75	13.36 ~ 13.41	156.7 ~ 156.9	2 200 ~ 2 300		17.7 ~ 21.4
5.677 ~ 5.683	16.42 ~ 16.423	162.01 25 ~ 167.17	2 310 ~ 2 390		22.01 ~ 23.12
6.215 ~ 6.218	16.694 75 ~ 16.695 25	167.72 ~ 173.2	2 483.5 ~ 2 500		23.6 ~ 24.0
6.267 75 ~ 6.268 25	16.804 25 ~ 16.804 75	240 ~ 285	2 655 ~ 2 900		31.2 ~ 31.8
6.311 75 ~ 6.312 25	25.5 ~ 25.67	322 ~ 335.4	3 260 ~ 3 267		36.43 ~ 36.5
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3 332 ~ 3 339		Above 38.6

- Measurement Data:

▪ Test Notes.

1. The radiated emissions were investigated 9 kHz 10th harmonic of highest fundamental frequency.. And no other spurious and harmonic emissions were found below listed frequencies.

2. Information of Distance Correction Factor

For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.

In this case, the distance correction factor is applied to the result.

- Calculation of distance factor

At frequencies below 30 MHz = 40 log(tested distance / specified distance)

At frequencies at or above 30 MHz = 20 log(tested distance / specified distance)

When distance factor is "N/A", the measurements were performed at the specified distance and distance factor is not applied.

3. Please refer to the appendix I for DCCF calculation.

4. Sample Calculation.

Margin = Limit – Result / Result = Reading + TF+ DCCF + DCF / TF = AF + CL + HL + AL – AG

Where, TF = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss,

AL = Attenuator Loss, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

Frequency (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
*433.90	V	Z	PK	88.15	-1.48	N/A	N/A	86.67	100.82	14.15
*433.90	V	Z	AV	88.15	-1.48	-9.69	N/A	76.98	80.82	3.84
867.81	H	X	PK	40.13	7.37	N/A	N/A	47.50	80.82	33.32
867.81	H	X	AV	40.13	7.37	-9.69	N/A	37.81	60.82	23.01
1 735.63	V	Z	PK	46.33	0.55	N/A	N/A	46.88	80.82	33.94
1 735.63	V	Z	AV	46.33	0.55	-9.69	N/A	37.19	60.82	23.63
3 905.21	H	X	PK	43.64	6.23	N/A	N/A	49.87	74.00	24.13
3 905.21	H	X	AV	43.64	6.23	-9.69	N/A	40.18	54.00	13.82
4 339.14	H	X	PK	51.38	6.81	N/A	N/A	58.19	74.00	15.81
4 339.14	H	X	AV	51.38	6.81	-9.69	N/A	48.50	54.00	5.50

5.3. AC Power-Line Conducted Emissions

- Test Setup

NA

- Test procedure

Conducted emissions from the EUT were measured according to the ANSI C63.10.

1. The test procedure is performed in a 6.5 m × 3.5 m × 3.5 m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

- Limit

According to §15.207(a) 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 50 uH/50 ohm line impedance stabilization network (LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.50	66 to 56 *	56 to 46 *
0.5 ~ 5.0	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

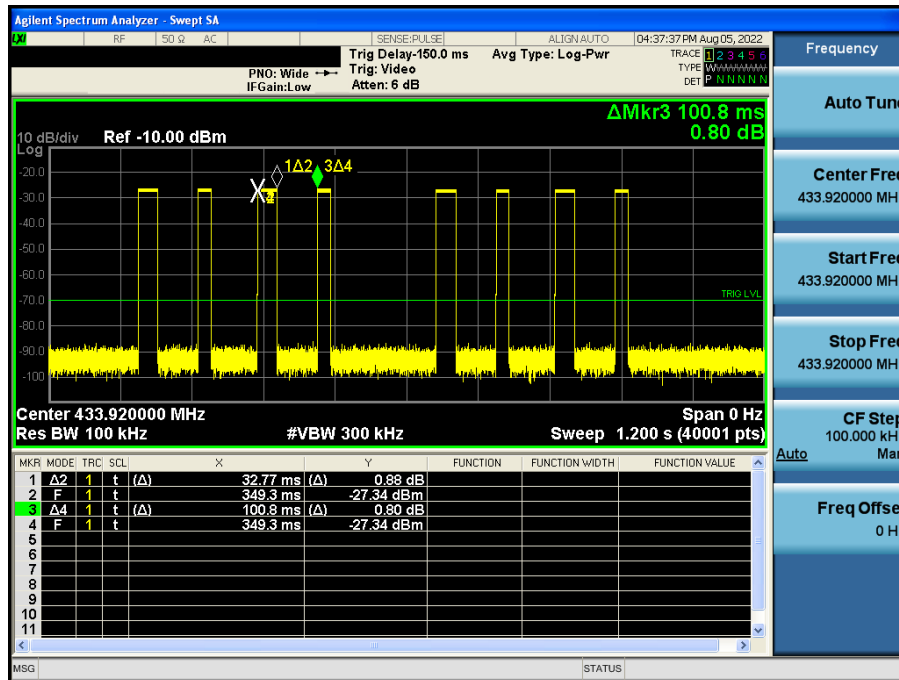
- Measurement Data:

NA

APPENDIX I

Duty Cycle Correction Factor calculation

Measured duty cycle



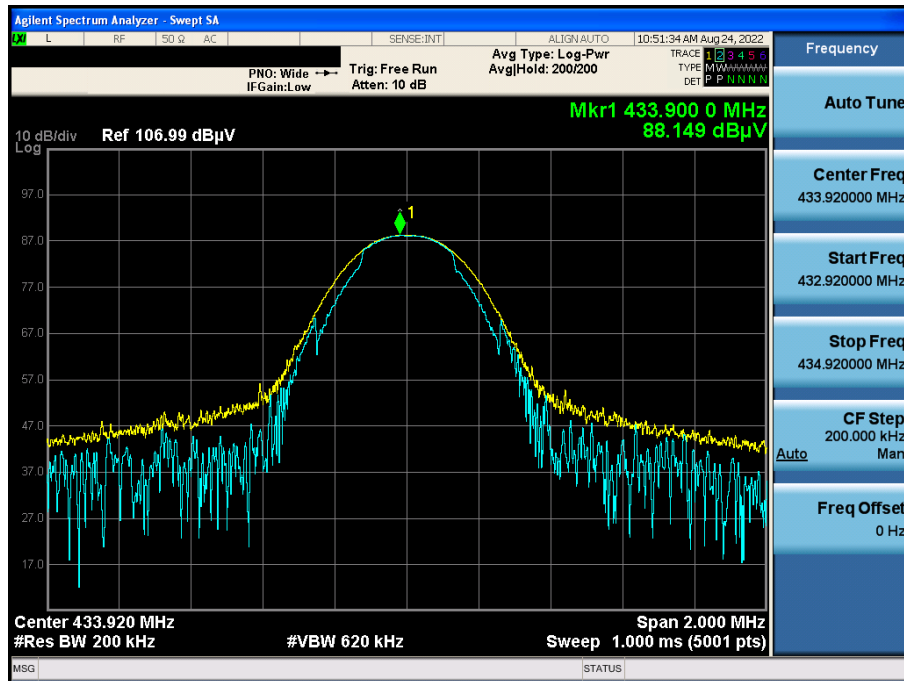
The worst case transmit time during 100ms interval	32.77 ms
Duty cycle corrector factor	$20 \times \log (32.77 \text{ ms} / 100 \text{ ms}) = -9.69 \text{ dB}$

APPENDIX II

Field strength of fundamental

Z axis & Ver

Detector Mode : PK



Spurious emissions

X axis & Hor

Detector Mode : PK

