



Project No.: TM-2211000293P Report No.: TMWK2211004638KR

FCC RADIO TEST REPORT FCC 47 CFR PART 15 SUBPART C

Test Standard	FCC Part 15.209+ IC RSS-210 Issue 10
FCC ID	KR5CMKG2
IC	7812D-CMKG2
Product name	Body Control Module
Model No.	CMKG2
Trade name	Continental
Operation Freq.	TX: 21.85 KHz
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of SGS Compliance Certification Services Inc. (Wugu Laboratory)

Approved by:

and 1

Shawn Wu Supervisor

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 11, 2023	Initial Issue	ALL	Doris Chu
01	February 1, 2023	See the following Note Rev. (01)	P.23, P.15	Doris Chu

Rev. (01)

1. Modify 9 kHz – 30MHz Antenna Pol. to Horizontal in section 4.2.

2. Modify Test Procedure in section 4.1.



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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Continental Automotive Technologies GmbH Siemensstrasse 12, 93055 Regensburg, Germany
Manufacturer	Continental Automotive Technologies GmbH Siemensstrasse 12, 93055 Regensburg, Germany
Factory	Continental Automotive Technologies GmbH Siemensstrasse 12 D-93055 Regensburg Germany
Equipment	Body Control Module
Model Name	CMKG2
Model Discrepancy	N/A
Received Date	November 23, 2022
Date of Test	November 28 ~ 30, 2022
Power Operation	Power from Battery. (DC 12V)
Operation Frequency	TX: 21.85 KHz
H/W Version	C1_1
S/W Version	V7.3
EUT Serial #	(A3) Serial No: 400015044063803212012201

Remark:

1. For more details, please refer to the User's manual of the EUT.

2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.



1.2 EUT CHANNEL INFORMATION

Frequency Range	TX: 21.85 KHz
Modulation Type	BPSK

Remark:

Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 for test channels

Number of frequencies to be tested					
Frequency range inNumber ofLocation in frequencywhich device operatesfrequenciesrange of operation					
1 MHz or less	1	Middle			
1 MHz to 10 MHz	2	1 near top and 1 near bottom			
More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom			

1.3 ANTENNA INFORMATION

Antenna	Туре	Model	Band	Max Gain
Rear antenna	Standard Keyless antenna	A205 905 3005	Continental	N/A
Transponder antenna	Transponder antenna	A223 905 22 00	Continental	N/A
Side antenna right	Long Range antenna	A206 905 25 04	Continental	N/A
Side antenna left	Long Range antenna	A206 905 25 04	Continental	N/A

Remark:

1. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.



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1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	± 2.1183
Channel Bandwidth	± 2.1863
Radiated Emission_9kHz-30MHz	± 3.814
Radiated Emission_30MHz-200MHz	± 4.272
Radiated Emission_200MHz-1GHz	± 4.619

Remark:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.



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1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

No. 12, Ln. 116, Wugong 3rd Rd., Wugu Dist., New Taipei City, Taiwan.

CAB identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	-	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Ray Li, Tony Chao	-
Conducted	David Li	-

Remark: The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.



1.6 INSTRUMENT CALIBRATION

	3M 966A Chamber Test Site						
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due		
PXA Signal Analyzer	Keysight Technologies	N9030B	MY62291089	2022-10-14	2023-10-13		
Loop Antenna	COM-POWER	AL-130	121051	2022-04-13	2023-04-12		
Preamplifier	EMEC	EM330	060609	2022-02-23	2023-02-22		
Thermo-Hygro Meter	WISEWIND	1206	D07	2021-12-28	2022-12-27		
Bi-Log Antenna	Sunol Sciences	JB3	A030105	2022-08-03	2023-08-02		
Cable	Huber+Suhner	104PEA	20995+11112+182 330	2022-02-23	2023-02-22		
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R		
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R		
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R		
Software	e3 6.11-20180419c						

Conducted						
Equipment	Manufacturer Model S/N Cal Date Cal Due					
EXA Signal Analyzer	Keysight	N9010B	MY55460167	2022-09-07	2023-09-06	
Loop Probe	LANGER EMV-TECHNIK	RF-R 50-1	02-2644	2022-01-24	2023-01-23	
Software			N/A			

Remark:

1. Each piece of equipment is scheduled for calibration once a year.

2. N.C.R. = No Calibration Required.



1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

There are no accessories and support equipment be used during the test.

EUT Accessories Equipment						
No.	No. Equipment Brand Model Series No. FCC ID					
	N/A					

	Support Equipment						
No.	Equipment	Brand	Model	Series No.	FCC ID		
1	DC power Source	Motech	PPS1208	N/A	N/A		
2	Battery	YUASA	75D23L	N/A	N/A		

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC 15.209, IC RSS-210, IC RSS-Gen Rules.



2. TEST SUMMARY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.215	RSS-GEN Sec. 6.7	4.1	20dB Bandwidth & 99% OBW	Pass
15.209	RSS-GEN Sec. 8.9	4.2	Transmitter Radiated Emission	Pass
15.207	RSS-GEN Sec. 8.8	4.3	AC Power-line Conducted Emission	Not applicable
15.203	RSS-GEN Sec. 6.8	4.4	Antenna Requirement	Pass

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3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	TX: 21.85KHz	
RF Field strength	<u>38.30 dBuV/m</u>	

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Below 1G				
Test Condition	Test Condition Radiated Emission Below 1G			
Power supply Mode	Mode 1: EUT power by Battery (A3)			
Worst Mode Mode 1 Mode 2 Mode 3 Mode 4				

Remark:

1. The worst mode was record in this test report.

2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report



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3.3 FCC PART 15.205 & RSS GEN SECTION 8.10 RESTRICTED BANDS OF OPERATIONS

According to FCC 15.205,

(a) Except as shown in other rules, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110 ¹ 0.495 - 0.505 2.1735 - 2.1905 4.125 - 4.128 4.17725 - 4.17775 4.20725 - 4.20775 6.215 - 6.218	16.42 - 16.423 16.69475 - 16.69525 16.80425 - 16.80475 25.5 - 25.67 37.5 - 38.25 73 - 74.6 74.8 - 75.2	399.9 - 410 608 - 614 960 - 1240 1300 - 1427 1435 - 1626.5 1645.5 - 1646.5 1660 - 1710	4.5 - 5.15 5.35 - 5.46 7.25 - 7.75 8.025 - 8.5 9.0 - 9.2 9.3 - 9.5 10.6 - 12.7
6.26775 - 6.26825 6.31175 - 6.31225 8.291 - 8.294 8.362 - 8.366 8.37625 - 8.38675 8.41425 - 8.41475 12.29 - 12.293 12.51975 - 12.52025 12.57675 - 12.57725 13.36 - 13.41	108 - 121.94 123 - 138 149.9 - 150.05 156.52475 - 156.52525 156.7 - 156.9 162.0125 - 167.17 167.72 - 173.2 240 - 285 322 - 335.4	1718.8 - 1722.2 2200 - 2300 2310 - 2390 2483.5 - 2500 2655 - 2900 3260 - 3267 3332 - 3339 3345.8 - 3358 3600 - 4400	13.25 - 13.4 14.47 - 14.5 15.35 - 16.2 17.7 - 21.4 22.01 - 23.12 23.6 - 24.0 31.2 - 31.8 36.43 - 36.5 (²)

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided by other rules, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



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According to RSS-GEN section 8.10 Restricted bands of operation,

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- (a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).
- (b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
- (c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.



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Table 7 – Restricted frequency bands Note 1				
MHz	MHz	GHz		
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2		
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5		
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7		
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4		
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5		
4.17725 - 4.17775	240 – 285	15.35 - 16.2		
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4		
5.677 - 5.683	399.9 - 410	22.01 - 23.12		
6.215 - 6.218	608 - 614	23.6 - 24.0		
6.26775 - 6.26825	960 - 1427	31.2 - 31.8		
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5		
8.291 - 8.294	1645.5 - 1646.5	Above 38.6		
8.362 - 8.366	1660 - 1710			
8.37625 - 8.38675	1718.8 - 1722.2			
8.41425 - 8.41475	2200 - 2300			
12.29 - 12.293	2310 - 2390			
12.51975 - 12.52025	2483.5 - 2500			
12.57675 - 12.57725	2655 - 2900			
13.36 - 13.41	3260 - 3267			
16.42 - 16.423	3332 - 3339			
16.69475 - 16.69525	3345.8 - 3358			
16.80425 - 16.80475	3500 - 4400			
25.5 - 25.67	4500 - 5150			
37.5 - 38.25	5350 - 5460			
73 - 74.6	7250 - 7750			
74.8 - 75.2	8025 - 8500			
108 – 138				

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.



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4. TEST RESULT

4.1 20DB BANDWIDTH & 99%OBW

DEFINITION

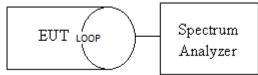
According to FCC Part 15.215 (c) ,Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

For ISED, RSS-GEN, 6.7 Occupied bandwidth (or 99% emission bandwidth) and x dB bandwidth

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the "x dB bandwidth" is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated x dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

TEST CONFIGURATION



TEST PROCEDURE

The Loop antenna connected to the spectrum analyzer, was touching to the transmitter antenna. Set the RBW=1%~5% of the OBW, VBW \geq 3 x RBW, Detector = Peak, Trace mode = Max hold, Sweep = 500ms.Measure the maximum width of the emission that is constrained by the frequencies associated with the Occupied Bandwidth.

TEST RESULTS

Compliance



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Test Data

Temperature:	25.3 ℃	Test Date:	November 28, 2022
Humidity:	55% RH	Tested By:	David Li

	20 dB Bandwidth (kHz)				
FL	FH	Bandwidth	99% Bandwidth (kHz)		
21.203	22.85	1.647	3.496		

Test Plots 20dB & 99%OBW

pectrum Analyzer 1 occupied BW	• +							Frequer	ncy 🔻 🛃
KEYSIGHT RL ↔ Align: Light	C Input Z: 50 Ω Corrections: Off Freq Ref: Int (S)	Atten: 0 dE Preamp: C		Avg Hold:		Z	21.850	requency kHz	Settings
l Graph 🔹							Span 10.000 I	kHz	
Scale/Div 15.0 dB 45.0 60.0 90.0 105	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Ref Value	-30.00 dBm		~~~~~	~~~~~~	CF Step 1.000 kł Auto Mar	Hz o	
-120							Freq Offs	set	
-165							0 Hz		
		#Video BW	/ 200.00 Hz			Span 10 kHz Sweep FFT			
2165 Center 21.850 kHz Res BW 62.00 Hz		#Video BW		Reference					
-165 Center 21.850 kHz Res BW 62.00 Hz 3 Boundary Metrics ▼	Bandwidth 3.496 kHz	#Video BW		Reference -20.00 dB					
-165 Center 21.850 kHz Res BW 62.00 Hz B Boundary Metrics			x dB	-20.00 dB	i5.4 dBm 840 kHz				
-165 Senter 21.850 kHz Res BW 62.00 Hz 3 Boundary Metrics V Occupied	3.496 kHz -58.4 dBm Lower	Boundary	x dB Power Frequency	-20.00 dB -6 21. Upper	.840 kHz Boundary	Sweep FFT			
2-165 Center 21.850 kHz Res BW 62.00 Hz 3 Boundary Metrics Occupied Total Power Occupied Bandwidth	3.496 kHz -58.4 dBm Lower Frequency 20.590 kHz	Boundary Abs Power -91 dBm	x dB Power Frequency Rel Power F -32.3 dBc	-20.00 dB -6 21. Upper l Frequency 24.087 kHz	.840 kHz Boundary Abs Power -93.8 dBm				
-165 Center 21.850 kHz Res BW 62.00 Hz Boundary Metrics Occupied Total Power	3.496 kHz -58.4 dBm Lower Frequency 20.590 kHz) Boundary Abs Power	x dB Power Frequency Rel Power F -32.3 dBc	-20.00 dB -6 21. Upper I Frequency	.840 kHz Boundary Abs Power -93.8 dBm	Sweep FFT			



4.2 TRANSMITTER RADIATED EMISSION

<u>LIMIT</u>

1. According to FCC PART 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:

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
	- <u> </u>	
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

Remark: Except as provided in other rules, 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., Sections 15.231 and 15.241.

2. In the above emission table, the tighter limit applies at the band edges.

Above 30MHz

Frequency		Field Strength	Measurement Distance
(MHz)	(µV/m)	(dBµV/m)	(meter)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3



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According to RSS-210, Section 7.3 and RSS-GEN Sec. 8.9

Transmitters whose wanted and unwanted emissions fall within the general field strength limits specified in RSS-Gen may operate licence-exempt in any of the frequency bands, other than the restricted frequency bands listed in RSS-Gen and the TV bands 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-602 MHz, and shall be certified under RSS-210. Under no circumstances shall the level of any unwanted emissions exceed the level of the fundamental emissions.

Below 30MHz

Table 6 – General field strength limits at frequencies below 30 MHz					
Frequency	Magnetic field strength (H-Field) (µA/m)	Measurement distance (m)			
9 - 490 kHz ^{Note 1}	6.37/F (F in kHz)	300			
490 - 1705 kHz	63.7/F (F in kHz)	30			
1.705 - 30 MHz	0.08	30			

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

Above 30MHz

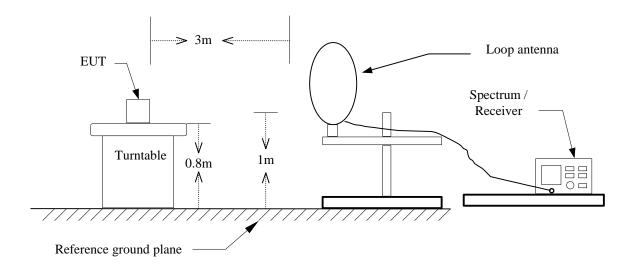
Table 5 – General field strength limits at frequencies above 30 MHz				
Frequency	Field strength (μV/m at 3 m)			
30 - 88	100			
88 – 216	150			
216 – 960	200			
Above 960	500			

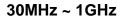


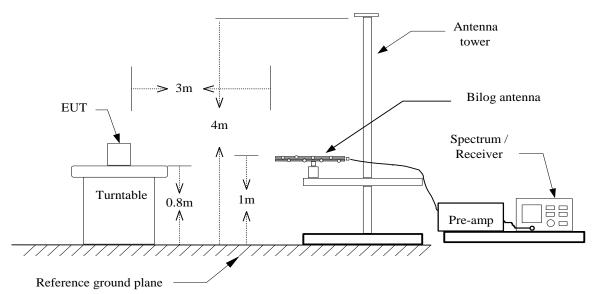
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Test Configuration

9kHz ~ 30MHz









TEST PROCEDURE

For 9KHz ~ 30MHz

- 1. The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Set the spectrum analyzer in the following setting as: Below 1GHz:

RBW=200kHz / VBW=600kHz / Sweep=AUTO

- 7. Repeat above procedures until the measurements for all frequencies are complete.
- 8. Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

For 30MHz ~ 1GHz

- 1. The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Set the spectrum analyzer in the following setting as: RBW=100kHz / VBW=300kHz / Sweep=AUTO
- 7. Repeat above procedures until the measurements for all frequencies are complete.



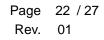
Fundamental Strength

Operation Mode	: Main	Test Mode:	Mode 1
Temperature:	23.7 ℃	Test Date:	November 30, 2022
Humidity:	62% RH	Tested by:	Tony Chao

Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin	Antenna
	Mode	Reading Level		FS			Pol.
				@300m	@300m		
(MHz)	(PK/QP/AV)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
0.02187	Average	102.15	-66.53	35.62	40.80	-5.19	V
0.02187	Average	104.83	-66.53	38.30	40.80	-2.51	Н
0.02187	Peak	96.75	-66.53	30.22	40.80	-10.59	G



Report No.: TMWK2211004638KR



Antenna Pol.: Vertical



Antenna Pol.: Horizontal





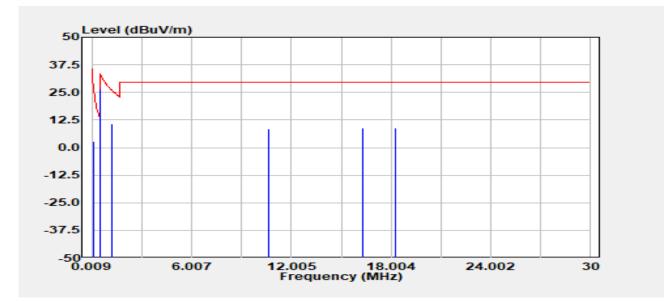
Antenna Pol.: Ground



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<u>9 kHz – 30MHz</u>

Operation Mode	: TX 21.85KHz	Antenna Pol.:	Horizontal
Temperature:	23.7 ℃	Test Date:	November 30, 2022
Humidity:	62% RH	Tested by:	Tony Chao
		Test Mode:	Mode 1



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS		
				@300m or 30m	@300m or 30m	
(MHz)	(PK/QP/AV)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
0.11	Peak	69.84	-66.96	2.87	26.84	-23.96
0.52	Peak	53.22	-26.52	26.71	33.31	-6.61
1.20	Peak	37.01	-26.37	10.64	25.99	-15.34
10.65	Peak	33.24	-24.91	8.33	29.54	-21.21
16.31	Peak	33.83	-24.79	9.04	29.54	-20.50
18.24	Peak	33.44	-24.74	8.70	29.54	-20.84

Remark:

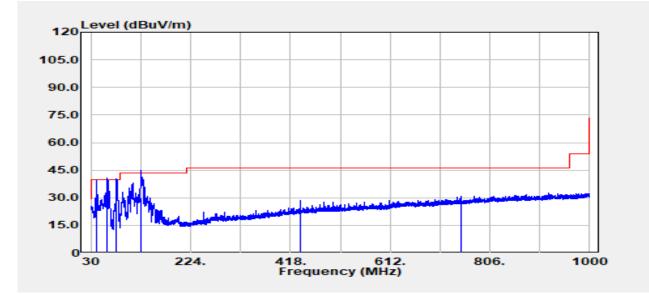
- 1. the frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.
- 2. Since the Factor included the distance conversion factor, the distance of Actual FS is 300m or 30m. (9kHz~490kHz is 300m, 490kHz~30MHz is 30m)



Below 1 GHz

Operation Mode	: TX 21.85KHz	Antenna Pol.:
Temperature:	23.7 ℃	Test Date:
Humidity:	62% RH	Tested by:
		Test Meder

Antenna Pol.:VerticalTest Date:November 30, 2022Tested by:Ray LiTest Mode:Mode 1



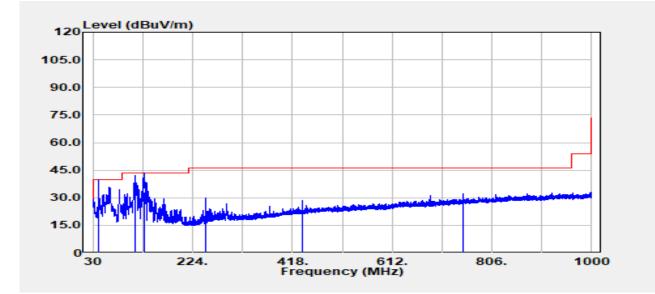
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
(MHz)	(PK/QP/AV)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
41.28	QP	46.53	-11.12	35.41	40.00	-4.59
62.37	QP	47.76	-16.11	31.64	40.00	-8.36
80.32	QP	45.53	-16.00	29.53	40.00	-10.47
127.61	QP	39.18	-9.40	29.78	43.50	-13.72
437.52	Peak	33.72	-4.98	28.73	46.00	-17.27
749.98	Peak	30.43	0.39	30.82	46.00	-15.18



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Operation Mode:TX 21.85KHzTemperature:23.7°CHumidity:62% RH

Antenna Pol.:	Horizontal
Test Date:	November 30, 2022
Tested by:	Ray Li
Test Mode:	Mode 1



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
(MHz)	(PK/QP/AV)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
41.16	QP	44.99	-11.06	33.93	40.00	-6.07
112.09	Peak	52.14	-10.09	42.05	43.50	-1.45
129.79	QP	42.72	-9.44	33.28	43.50	-10.22
249.95	Peak	40.99	-11.00	29.99	46.00	-16.01
437.52	Peak	33.74	-4.98	28.75	46.00	-17.25
749.98	Peak	31.90	0.39	32.29	46.00	-13.71



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4.3 AC POWER LINE CONDUCTED EMISSION

4.3.1 Test Limit

According to §15.207(a), RSS-Gen Sec.8.8,

Frequency Range	Limits(dBµV)		
(MHz)	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	

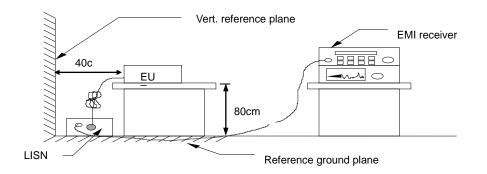
* Decreases with the logarithm of the frequency.

4.3.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.2,

- 1. The EUT was placed on a table, which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete

4.3.3 Test Setup



4.3.4 Test Result

Not applicable, because EUT doesn't connect to AC Main Source direct.



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4.4 ANTENNA REQUIREMENT

§ 15.203 Antenna requirement and RSS-Gen 6.8.

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 of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Antenna	Туре	Model	Band	Max Gain
Rear antenna	Standard Keyless antenna	A205 905 3005	Continental	N/A
Transponder antenna	Transponder antenna	A223 905 22 00	Continental	N/A
Side antenna right	Long Range antenna	A206 905 25 04	Continental	N/A
Side antenna left	Long Range antenna	A206 905 25 04	Continental	N/A

Remark:

1. The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203 and RSS-Gen 6.8.

- End of Test Report -