

2. Test Summary

Standard	Section	To of life m		ludamont	Domorik
FCC	IC	lest item	Test Sample(s)	Juagment	Remark
FCC 15.207(a)	RSS-Gen 8.8	Conducted Emission	HC-C-202409-0194-01-02	PASS	N/A
FCC 15.209 & 15.247(d)	RSS-Gen 8.9 & RSS 247 5.5	Radiated Unwanted Emissions	HC-C-202409-0194-01-02	PASS	N/A
FCC 15.203	RSS-247 6.8	Antenna Requirement	HC-C-202409-0194-01-01	PASS	N/A
FCC 15.247(a)(2)	RSS-247 5.2(a)	6dB Bandwidth	HC-C-202409-0194-01-01	PASS	N/A
	RSS-Gen 6.7	99% Occupied bandwidth	HC-C-202409-0194-01-01	PASS	N/A
FCC 15.247(b)(3)	RSS-247 5.4(d)	Peak Output Power and E.I.R.P	HC-C-202409-0194-01-01	PASS	N/A
FCC 15.247(e)	RSS-247 5.2(b)	Power Spectral Density	HC-C-202409-0194-01-01	PASS	N/A
FCC 15.247(d)	RSS-Gen 8.10& RSS-247 5.5	Band Edge Measurements	HC-C-202409-0194-01-01	PASS	N/A
FCC 15.207(a)	RSS-Gen 8.9 & RSS 247 5.5	Conducted Unwanted Emissions	HC-C-202409-0194-01-01	PASS	N/A
FCC 15.247(d)	RSS-Gen 8.10& RSS-247 5.5	Emissions in Restricted Bands	HC-C-202409-0194-01-01	PASS	N/A
		On Time and Duty Cycle	HC-C-202409-0194-01-01	1	N/A

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3. Test Software

Test Item	Test Software	Manufacturer	Version No.	
Conducted Emission	EZ-EMC	EZ	CDI-03A2	
Radiation Emission	EZ-EMC	EZ	FA-03A2RE	
Radiation Emission	EZ-EMC	EZ	FA-03A2RE+	
RF Conducted	MTS 8310	MW/PEtect	V2000	
Measurement	1013-0310		V2.0.0.0	
RF Test System	JS1120	Tonscend	V3.2.22	



4. Test Equipment and Test Site

			Test Site				
No.	Test	Site	Manufacturer	Spe	cification	U	sed
TB-EMCSR001	Shield	ling Chamber #1	YIHENG	7.5*4	4.0*3.0(m)		\checkmark
TB-EMCSR002	Shield	ling Chamber #2	YIHENG	8.0*4	4.0*3.0(m)		Х
TB-EMCCA001	3m An	nechoic Chamber #A	ETS	9.0*6	6.0*6.0 (m)		x
TB-EMCCB002	3m An	echoic Chamber #B	YIHENG	9.0*6	6.0*6.0 (m)		\checkmark
Conducted Emi	ssion	Test	-			Γ	
Equipment		Manufacturer	Model No.		Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	~	Rohde & Schwarz	ESCI	-	100321	Jun. 17, 2024	Jun. 16, 2025
RF Switching Unit		Compliance Direction Systems Inc	RSU-A4	1	34403	Jun. 17, 2024	Jun. 16, 2025
AMN	5	SCHWARZBECK	NNBL 8226-2	5	8226-2/164	Jun. 17, 2024	Jun. 16, 2025
LISN		Rohde & Schwarz	ENV216		101131	Jun. 17, 2024	Jun. 16, 2025
Radiation Emiss	sion Te	est(B Site)				•	•
Equipment		Manufacturer	Model No.		Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	-NB	Agilent	N9020A		MY49100060	Aug. 29, 2024	Aug. 28, 2025
Spectrum Analyzer		Rohde & Schwarz	FSV40-N		102197	Jun. 17, 2024	Jun. 16, 2025
EMI Test Receiver	62	Rohde & Schwarz	ESU-8		100472/008	Feb. 23, 2024	Feb.22, 2025
Bilog Antenna	NE	SCHWARZBECK	VULB 9168		1225	Nov. 13, 2023	Nov. 12, 2025
Horn Antenna		SCHWARZBECK	BBHA 9120 D		2463	Jun. 14, 2024	Jun. 13, 2026
Horn Antenna	-	SCHWARZBECK	BBHA 9170	20	1118	Feb. 27, 2024	Feb.26, 2026
Loop Antenna	132	SCHWARZBECK	FMZB 1519 B	Contraction of the second	1519B-059	Jun. 14, 2024	Jun. 13, 2026
HF Amplifier		Tonscend	TAP9E6343	-	AP21C806117	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier	. \	Tonscend	TAP051845	5	AP21C806141	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier		Tonscend	TAP0184050	N.	AP21C806129	Aug. 29, 2024	Aug. 28, 2025
Highpass Filter		CD	HPM-6.4/18G			N/A	N/A
Highpass Filter	650	CD	HPM-2.8/18G	2		N/A	N/A
Highpass Filter		XINBO	XBLBQ-HTA67(8-250	G)	22052702-1	N/A	N/A
Antenna Condu	icted E	mission					
Equipment		Manufacturer	Model No.		Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	1411	Rohde & Schwarz	FSV40-N		102197	Jun. 17, 2024	Jun. 16, 2025
MXA Signal Analyze	er	KEYSIGHT	N9020B		MY60110172	Aug. 29, 2024	Aug. 28, 2025
MXA Signal Analyze	er	Agilent	N9020A	-	MY47380425	Aug. 29, 2024	Aug. 28, 2025
	14.97	DARE!! Instruments	RadiPowerRPR3006	SW	17100015SNO26	Aug. 29, 2024	Aug. 28, 2025
		DARE!! Instruments	RadiPowerRPR3006	SW	17100015SNO29	Aug. 29, 2024	Aug. 28, 2025
RF Power Sensor		DARE!! Instruments	RadiPowerRPR3006	W	17100015SNO31	Aug. 29, 2024	Aug. 28, 2025
NU.		DARE !! Instruments	RadiPowerRPR3006	W	17100015SNO33	Aug. 29, 2024	Aug. 28, 2025
Temperature and Humidity Chamber		ZhengHang	ZH-QTH-1500		ZH2107264	Jun. 17, 2024	Jun. 16, 2025





5. Conducted Emission

- 5.1 Test Standard and Limit
 - 5.1.1 Test Standard RSS-Gen 8.8 FCC Part 15.207
 - 5.1.2 Test Limit

Freedore	Maximum RF Line Voltage (dBμV)			
Frequency	Quasi-peak Level	Average Level		
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *		
500kHz~5MHz	56	46		
5MHz~30MHz	60	50		

Notes:

(1) *Decreasing linearly with logarithm of the frequency.

- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.2 Test Setup



5.3 Test Procedure

• 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 equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

● 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.

● 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.

●LISN at least 80 cm from nearest part of EUT chassis.

● The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.





5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

Please refer to the Attachment A inside test report.



6. Radiated and Conducted Unwanted Emissions

- 6.1 Test Standard and Limit
 - 6.1.1 Test Standard RSS-Gen 8.9 & RSS 247 5.5 FCC Part 15.209 & FCC Part 15.247(d)
 - 6.1.2 Test Limit

Genera	al field strength limits	at frequencies Below	30MHz
Frequency (MHz)	Field Strength (μA/m)*	Field Strength (microvolt/meter)**	Measurement Distance (meters)
0.009~0.490	6.37/F (F in kHz)	2400/F(KHz)	300
0.490~1.705	63.7/F (F in kHz)	24000/F(KHz)	30
1.705~30.0	0.08	30	30
Notes 1. The employing live	with fau the name and 0 00 kl	17 and 110 100 kl 17 are ha	and an managuramenta

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

2, *is for RSS Standard, **is for FCC Standard.

General field s	strength limits at frequenc	ies above 30 MHz
Frequency (MHz)	Field strength (μV/m at 3 m)	Measurement Distance (meters)
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

General field str	ength limits at frequencies	Above 1000MHz	
Frequency	Distance of 3m (dBuV/m)		
(MHz)	Peak	Average	
Above 1000	74	54	

Note:

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

(2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.





6.2 Test Setup



Above 1GHz Test Setup





Conducted measurement



6.3 Test Procedure

---Radiated measurement

● The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.

• Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

• The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

• The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

● If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Below 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

• Testing frequency range 30MHz-1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection. Testing frequency range 9KHz-150Hz the measuring instrument use VBW=200Hz with Quasi-peak detection. Testing frequency range 9KHz-30MHz the measuring instrument use VBW=9kHz with Quasi-peak detection.

● Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

• For the actual test configuration, please see the test setup photo.

--- Conducted measurement

Reference level measurement

Establish a reference level by using the following procedure:

a) Set instrument center frequency to DTS channel center frequency.

- b) Set the span to≥1.5 times the DTS bandwidth.
- c) Set the RBW = 100 kHz.
- d) Set the VBW≥[3*RBW].
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.

i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

• Emission level measurement

Establish an emission level by using the following procedure:

a) Set the center frequency and span to encompass frequency range to be measured.

- b) Set the RBW = 100 kHz.
- c) Set the VBW≥[3*RBW].
- d) Detector = peak.





- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.

h) Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Mode

Please refer to the description of test mode.

6.6 Test Data

Radiated measurement please refer to the Attachment B inside test report. Conducted measurement please refer to the external appendix report of BLE.





7. Restricted Bands and Band Edge Requirement

- 7.1 Test Standard and Limit
 - 7.1.1 Test Standard RSS-Gen 8.10 & RSS 247 5.5 FCC Part 15.205 & FCC Part 15.247(d)
 - 7.1.2 Test Limit

Restricted Frequency	Distance Me	eters(at 3m)
Band (MHz)	Peak (dBuV/m)	Average (dBuV/m)
2310 ~2390	74	54
2483.5 ~2500	74	54
	Peak (dBm)see 7.3 e)	Average (dBm) see 7.3 e)
2310 ~2390	Peak (dBm)see 7.3 e) -21.20	Average (dBm) see 7.3 e) -41.20
2310 ~2390 2483.5 ~2500	Peak (dBm)see 7.3 e) -21.20 -21.20	Average (dBm) see 7.3 e) -41.20 -41.20

Note: According the ANSI C63.10 11.12.2 antenna-port conducted measurements may also be used as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test forcabinet/case emissions is required.

7.2 Test Setup



