



EMC TEST REPORT

Product Name: Smart Pos Payment Terminal

Model Name: SP60

FCC ID: SS4SP60F1

Issued For : Bluebird Inc.

3F, 115, Irwon ro, Gangnam gu, Seoul , Republic of Korea
(06355)

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park,
No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan
District, Shenzhen, Guangdong, China

Report Number: LGT24L008EM03

Sample Received Date: Dec. 05, 2024

Date of Test: Dec. 05, 2024 ~ Feb. 14, 2025

Date of Issue: Feb. 14, 2025

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TEST REPORT CERTIFICATION

Applicant: Bluebird Inc.
Address: 3F, 115, Irwon ro, Gangnam gu, Seoul , Republic of Korea (06355)
Manufacturer: Bluebird Inc.
Address: 3F, 115, Irwon ro, Gangnam gu, Seoul , Republic of Korea (06355)
Factory 1: Mobiwire Mobiles (NingBo) Co.,Ltd.
Address: No. 518, Changting East Road, Yuelin Street, Fenghua District, Ningbo City, Zhejiang Province,China
Factory 2: Bluebird Inc.
Address: SSang-young IT Twin tower-B 7~8F), 531, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Factory 3: DSGLOBAL VINA CO.,LTD
Address: Lot XN3-1E, Dai An expansion Industrial Zone, Lai Cach town Cam Giang district, HaiDuong province, Vietnam
Product Name: Smart Pos Payment Terminal
Trademark: Bluebird
Model Name: SP60
Sample Status: Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR Part 15 Subpart B ANSI C63.4-2014	PASS

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Technical Director





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Revision History

Rev.	Issue Date	Revisions
00	Feb. 14, 2025	Initial Issue



1. TEST SUMMARY

EMC Emission				
Standard	Test Item	Limit	Judgement	Remark
FCC 47 CFR Part 15 Subpart B ANSI C63.4-2014	Conducted Emissions	Class B	PASS	
	Radiated Emissions Below 1GHz	Class B	PASS	
	Radiated Emissions Above 1GHz	Class B	PASS	Note 2

Note:

- 1 "N/A" denotes test is not applicable in this Test Report
- 2 If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.



1.1 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

1.2 MEASUREMENT UNCERTAINTY

Test Item	Measurement Frequency Range MHz	Uncertainty dB
Conducted Emissions at AC mains power port	0.009 ~ 30	2.80
Radiated Emissions	0.009 ~ 30	2.16
Radiated Emissions	30 ~ 1000	4.40
Radiated Emissions	1000 ~ 6000	5.10
Radiated Emissions	6000 ~ 18000	5.49
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. The measurement uncertainty is not included in the test result.		



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	Smart Pos Payment Terminal
Trademark:	Bluebird
Model Name:	SP60
Maximum operating frequency:	>108MHz
Adapter:	Input: AC 100-240V 50/60 Hz 0.6A Output: DC 5V 3.0A 15W
Battery:	BAT-202001 Capacity: 2000mAh Rated Voltage: 7.7V BAT-342001 Capacity: 3420mAh Rated Voltage: 7.7V
Test voltage:	AC 120V/60Hz for adapter Battery: 7.7V
Hardware Version:	V1.0
Software Version:	R1.01
Connecting I/O Port(s):	Please refer to the Note 1.

Note 1: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

Note 2:

Model	Battery capacity	Print head	charging stand
SP60 (Configuration 1)	3420mAh	Yes	High configuration: USB1 Output: 5Vdc, 1.0A USB2 Output: 5Vdc, 0.5A
	3420mAh	Yes	Low configuration: No
SP60 (Configuration 2)	2000mAh	No	High configuration: USB1 Output: 5Vdc, 1.0A USB2 Output: 5Vdc, 0.5A
	2000mAh	No	Low configuration: No



2.2 DESCRIPTION OF THE TEST MODES

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

Pretest Mode	Description
Mode 1	Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording
Mode 2	Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN
Mode 3	Charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording
Mode 4	Dock charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording+USB+LAN
Mode 5	Charging+LTE link+BT+Wi-Fi+GPS+ NFC+Camera recording
Mode 6	Dock charging+LTE link+BT+Wi-Fi+GPS+ NFC+Camera recording+USB+LAN
Mode 7	USB Data Transmission
Mode 8	Charging +Working

Conducted Emission Test	
Final Test Mode	Description
Mode 1	Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording
Mode 2	Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN
Mode 3	Charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording
Mode 4	Dock charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording+USB+LAN
Mode 5	Charging+LTE link+BT+Wi-Fi+GPS+ NFC+Camera recording
Mode 6	Dock charging+LTE link+BT+Wi-Fi+GPS+ NFC+Camera recording+USB+LAN
Mode 7	USB Data Transmission
Mode 8	Charging +Working
Mode 1	Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording
Mode 2	Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN
Mode 3	Charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording
Mode 4	Dock charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording+USB+LAN

For Radiated Emission	
Final Test Mode	Description
Mode 1	Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording
Mode 2	Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN
Mode 3	Charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording
Mode 4	Dock charging+WCDMA link+BT+Wi-Fi+GPS+ NFC+Camera recording+USB+LAN
Mode 5	Charging+LTE link+BT+Wi-Fi+GPS+ NFC+Camera recording
Mode 6	Dock charging+LTE link+BT+Wi-Fi+GPS+ NFC+Camera recording+USB+LAN
Mode 7	USB Data Transmission
Mode 8	Charging +Working

Note: For radiated emission test, test mode 1 was the worst case and only this mode was presented in this report.



2.3 DESCRIPTION OF THE 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.

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter	Shenzhen Yingyuan Electronics Co., LTD	ICP20-050-3000B	N/A	Input: 100-240V ~ 50/60Hz 0.6A Output: 5V, 3A
USB-A to USB-C Cable	N/A	N/A	N/A	1m

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	HKF-16	N/A	N/A

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.4 MEASUREMENT INSTRUMENTS LIST

Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU8	100372	2024.03.09	2025.03.08
LISN	COM-POWER	LI-115	02032	2024.03.09	2025.03.08
LISN	SCHWARZBECK	NNLK 8122	00160	2024.03.09	2025.03.08
Transient Limiter	CYBERTEK	EM5010A	E2250100049	2024.03.09	2025.03.08
Temperature & Humidity	KTJ	TA218B	N.A	2024.03.09	2025.03.08
Testing Software	EMC-I_V1.4.0.3_SKET				
Radiated Emission					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU8	100372	2024.03.09	2025.03.08
Spectrum Analyzer	Keysight	N9020A	MY50530994	2024.03.09	2025.03.08
Spectrum Analyzer	Keysight	N9010B	MY60242508	2024.08.05	2025.08.04
Active loop Antenna	ETS	6502	00049544	2023.10.13	2025.10.12
Bilog Antenna	SCHWARZBECK	VULB 9168	01447	2022.12.12	2025.12.11
Horn Antenna	SCHWARZBECK	3115	10SL0060	2022.06.02	2025.06.01
Pre-amplifier (9kHz-1GHz)	EMtrace	RP01A	02017	2024.03.09	2025.03.08
Pre-amplifier (1-26.5G)	Agilent	8449B	3008A4722	2024.03.09	2025.03.08
Temperature & Humidity	JINGCHUANG	BT-3	N.A	2024.03.11	2025.03.10
Testing Software	EMC-I_V1.4.0.3_SKET				



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS

FREQUENCY (MHz)	Conducted Emission Limits (dBuV)			
	Class A		Class B	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.5 ~ 5	73.00	60.00	56.00	46.00
5 ~ 30	73.00	60.00	60.00	50.00

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) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor
Margin Level = Measurement Value - Limit Value

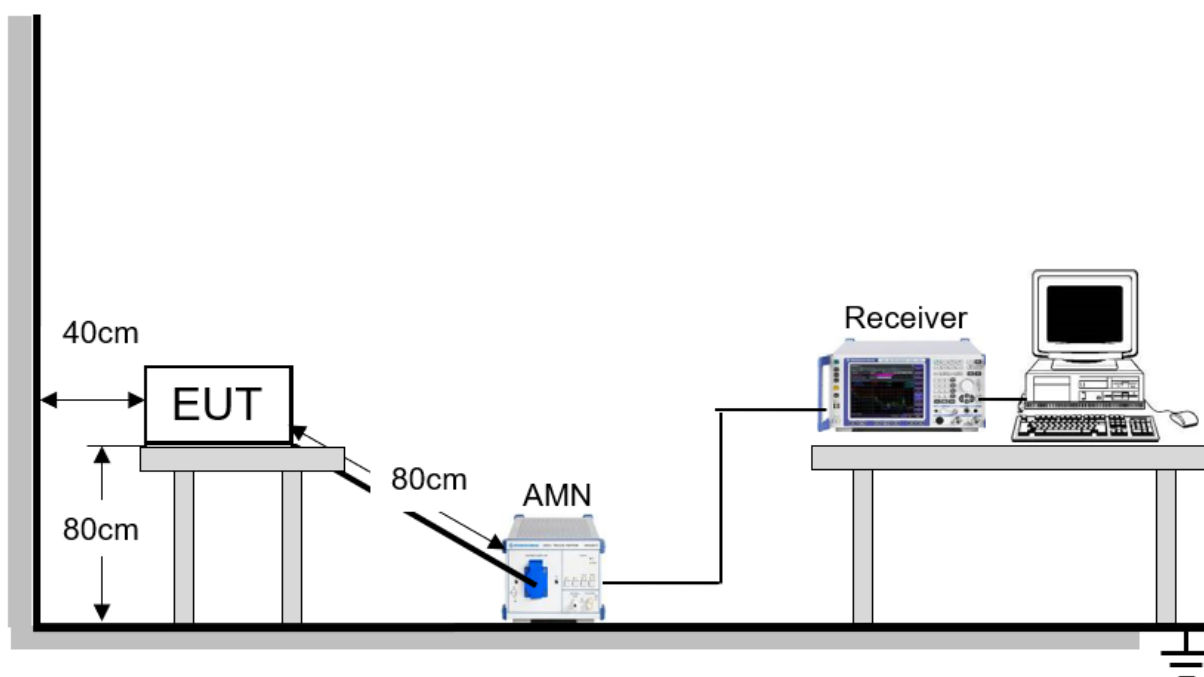
The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs 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.

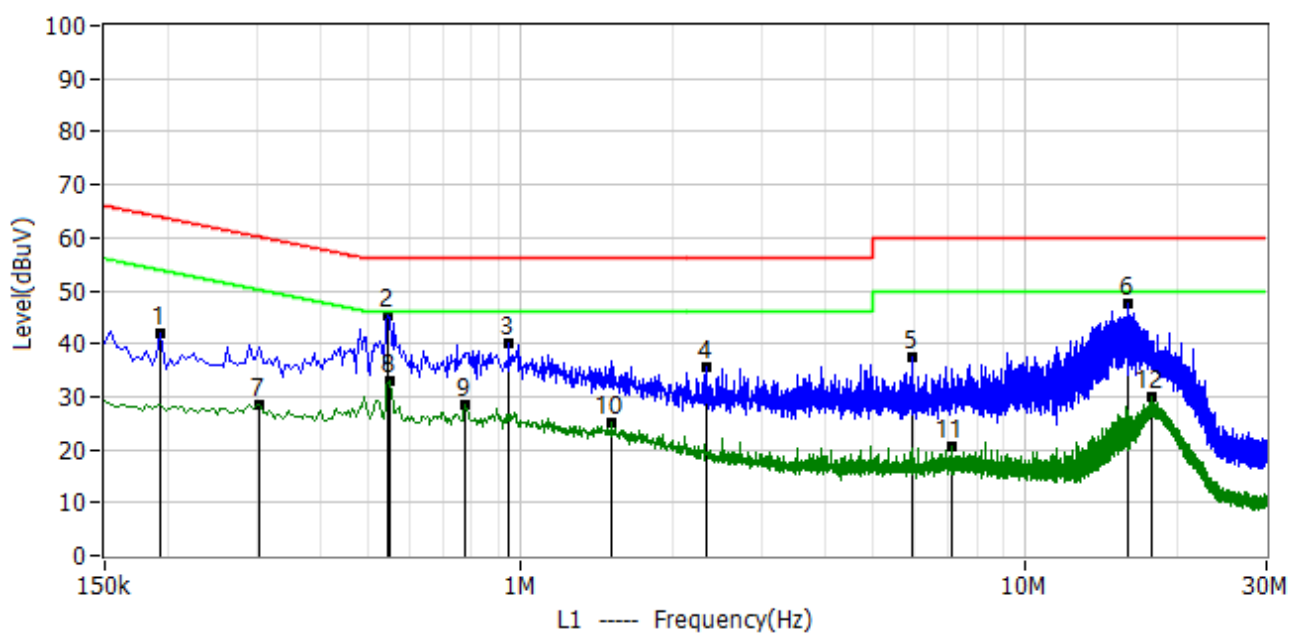
3.1.3 TEST SETUP





3.1.4 TEST RESULTS

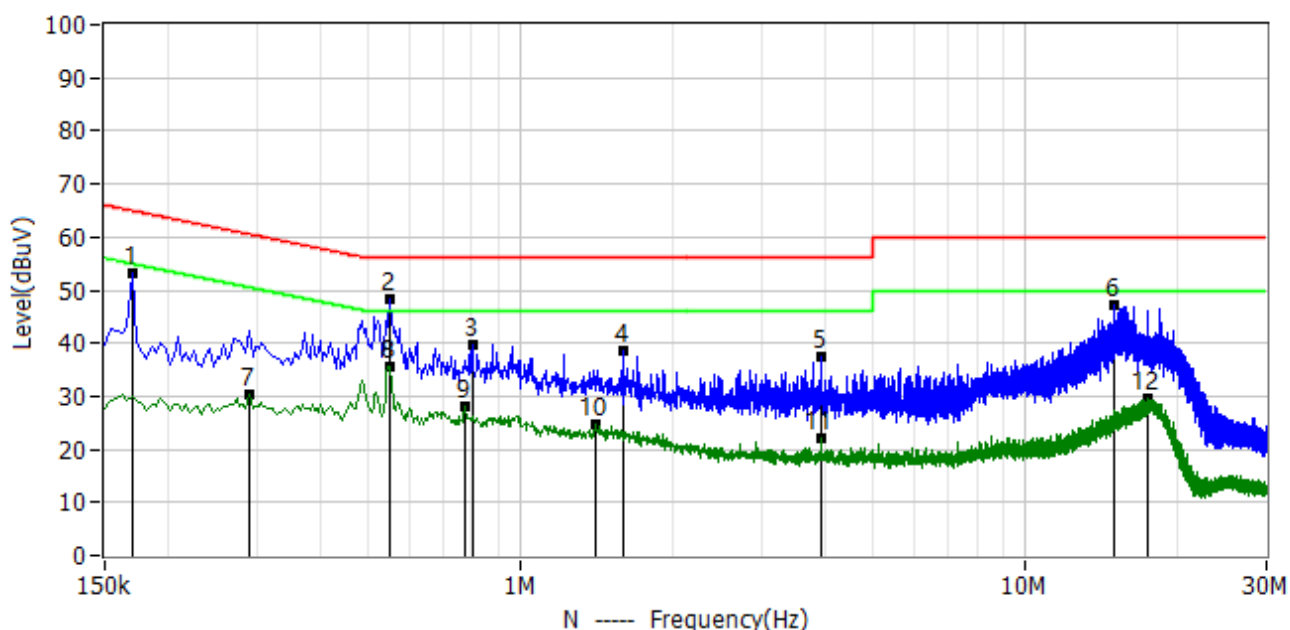
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 20.1°C
M/N: SP60	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-12
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.194	31.21	10.62	41.83	63.86	-22.04	QP	L1
2*	0.546	34.75	10.57	45.32	56.00	-10.68	QP	L1
3*	0.946	29.45	10.67	40.12	56.00	-15.88	QP	L1
4*	2.322	24.62	11.06	35.68	56.00	-20.32	QP	L1
5*	5.938	26.51	11.04	37.55	60.00	-22.45	QP	L1
6*	16.006	36.25	11.44	47.69	60.00	-12.31	QP	L1
7*	0.302	18.05	10.58	28.63	50.19	-21.56	AV	L1
8*	0.550	22.35	10.57	32.92	46.00	-13.08	AV	L1
9*	0.778	17.78	10.60	28.38	46.00	-17.62	AV	L1
10*	1.510	14.44	10.84	25.28	46.00	-20.72	AV	L1
11*	7.146	9.48	10.99	20.47	50.00	-29.53	AV	L1
12*	17.814	18.60	11.53	30.13	50.00	-19.87	AV	L1



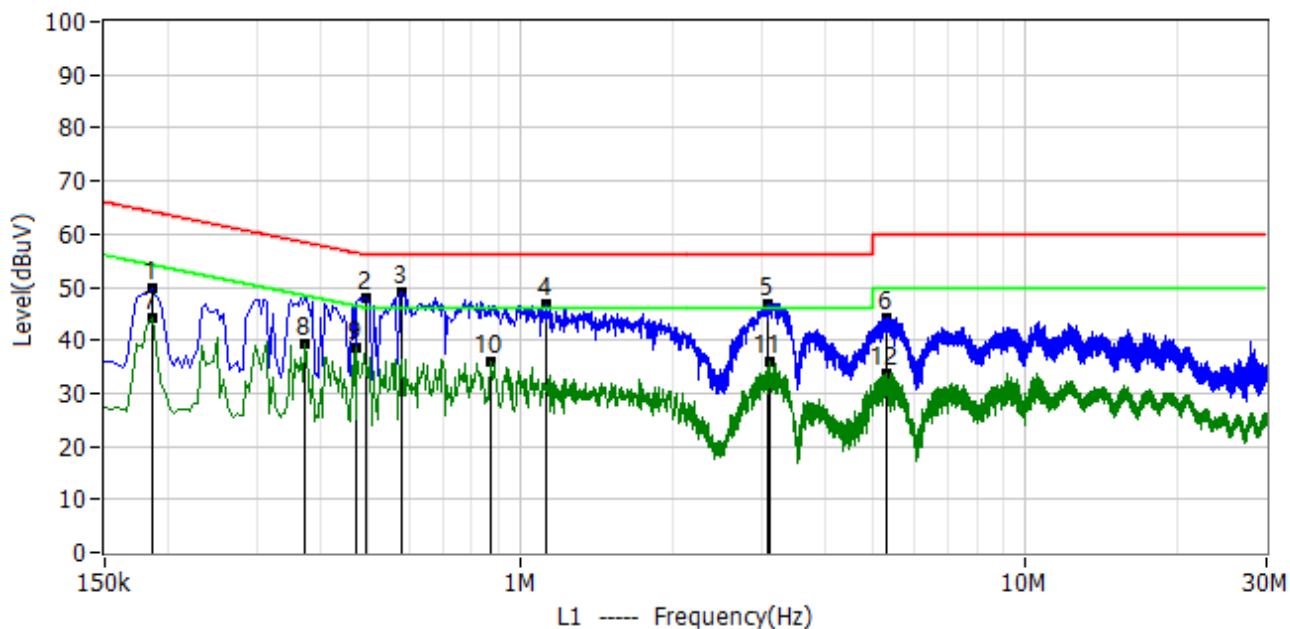
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 20.1°C
M/N: SP60	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-12
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.170	42.80	10.56	53.36	64.96	-11.60	QP	N
2*	0.550	37.75	10.55	48.30	56.00	-7.70	QP	N
3*	0.802	29.30	10.56	39.86	56.00	-16.14	QP	N
4*	1.590	27.73	10.67	38.40	56.00	-17.60	QP	N
5*	3.922	26.71	10.81	37.52	56.00	-18.48	QP	N
6*	14.994	35.83	11.38	47.21	60.00	-12.79	QP	N
7*	0.290	19.80	10.59	30.39	50.52	-20.14	AV	N
8*	0.550	24.93	10.55	35.48	46.00	-10.52	AV	N
9*	0.774	17.59	10.56	28.15	46.00	-17.85	AV	N
10*	1.402	14.03	10.63	24.66	46.00	-21.34	AV	N
11*	3.926	11.23	10.81	22.04	46.00	-23.96	AV	N
12*	17.414	18.09	11.50	29.59	50.00	-20.41	AV	N



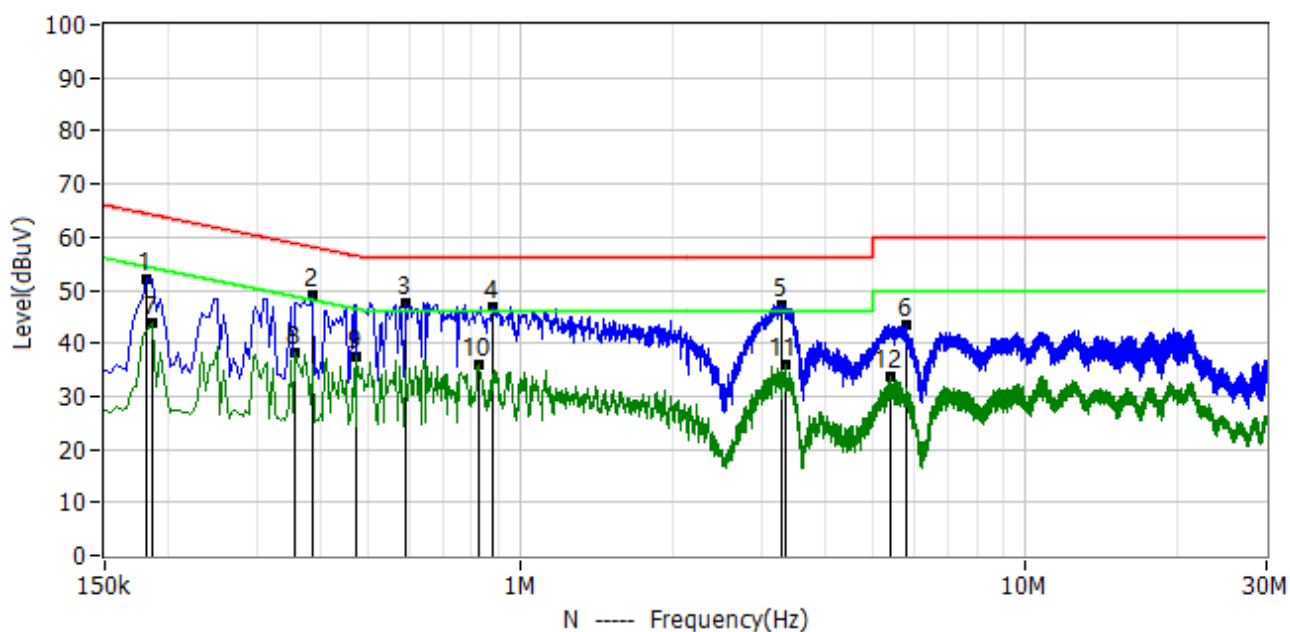
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 22.8°C
M/N: SP60	Humidity: 34%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-17
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.186	39.18	10.61	49.79	64.21	-14.43	QP	L1
2*	0.494	37.46	10.57	48.03	56.10	-8.07	QP	L1
3*	0.582	38.35	10.57	48.92	56.00	-7.08	QP	L1
4*	1.126	35.95	10.73	46.68	56.00	-9.32	QP	L1
5*	3.086	35.78	11.19	46.97	56.00	-9.03	QP	L1
6*	5.282	33.24	11.07	44.31	60.00	-15.69	QP	L1
7*	0.186	33.46	10.61	44.07	54.21	-10.15	AV	L1
8*	0.374	28.70	10.57	39.27	48.41	-9.14	AV	L1
9*	0.474	27.89	10.57	38.46	46.44	-7.98	AV	L1
10*	0.874	25.27	10.64	35.91	46.00	-10.09	AV	L1
11*	3.122	24.61	11.19	35.80	46.00	-10.20	AV	L1
12*	5.322	22.80	11.07	33.87	50.00	-16.13	AV	L1



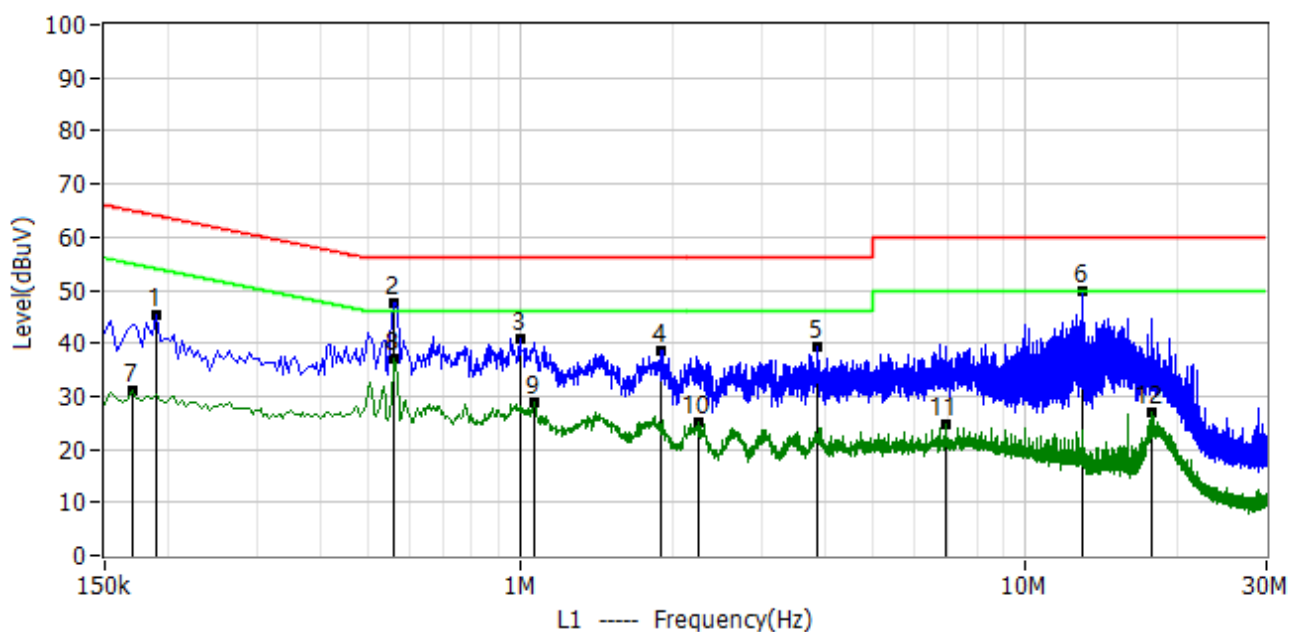
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 22.8°C
M/N: SP60	Humidity: 34%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-17
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.182	41.66	10.56	52.22	64.39	-12.17	QP	N
2*	0.386	38.49	10.59	49.08	58.15	-9.07	QP	N
3*	0.594	37.18	10.55	47.73	56.00	-8.27	QP	N
4*	0.878	36.41	10.55	46.96	56.00	-9.04	QP	N
5*	3.298	36.31	10.79	47.10	56.00	-8.90	QP	N
6*	5.782	32.60	10.83	43.43	60.00	-16.57	QP	N
7*	0.186	33.32	10.56	43.88	54.21	-10.33	AV	N
8*	0.358	27.79	10.59	38.38	48.77	-10.39	AV	N
9*	0.474	26.86	10.55	37.41	46.44	-9.04	AV	N
10*	0.826	25.28	10.55	35.83	46.00	-10.17	AV	N
11*	3.338	25.28	10.79	36.07	46.00	-9.93	AV	N
12*	5.406	22.81	10.83	33.64	50.00	-16.36	AV	N



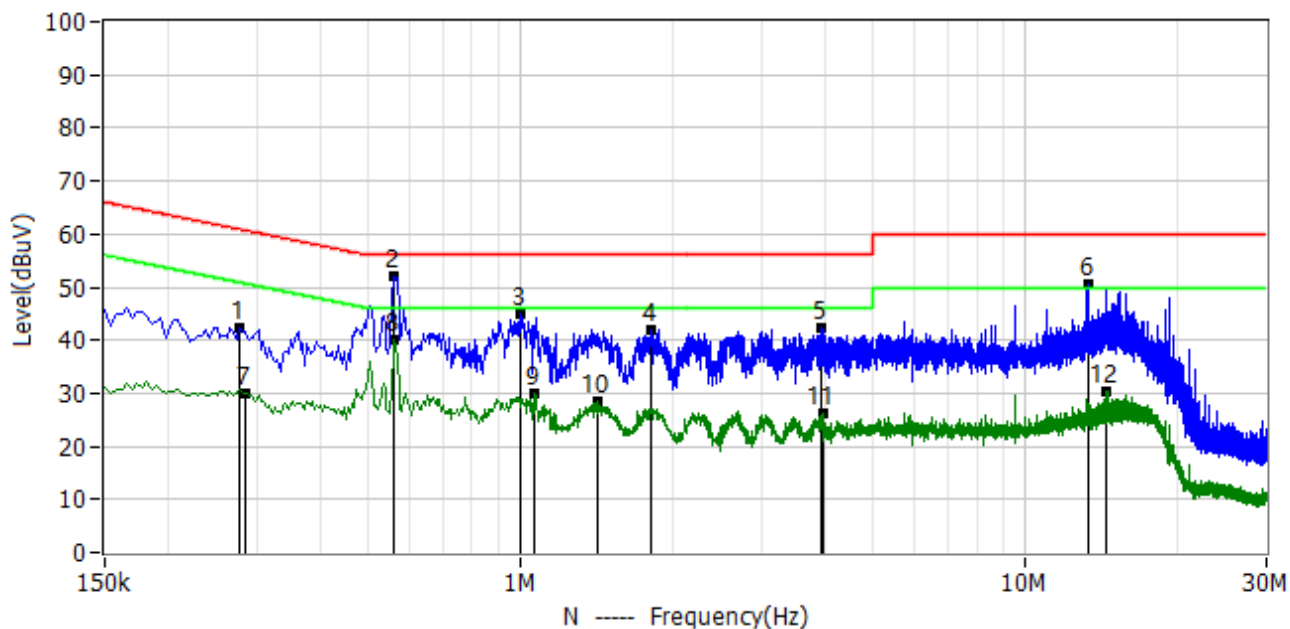
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 20.1°C
M/N: SP60	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-12
Test Mode: Working	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.190	34.76	10.61	45.37	64.04	-18.67	QP	L1
2*	0.558	36.94	10.57	47.51	56.00	-8.49	QP	L1
3*	0.998	30.24	10.69	40.93	56.00	-15.07	QP	L1
4*	1.898	27.79	10.96	38.75	56.00	-17.25	QP	L1
5*	3.878	28.17	11.14	39.31	56.00	-16.69	QP	L1
6*	12.970	38.67	11.24	49.91	60.00	-10.09	QP	L1
7*	0.170	20.38	10.59	30.97	54.96	-23.99	AV	L1
8*	0.562	26.47	10.57	37.04	46.00	-8.96	AV	L1
9*	1.066	18.07	10.71	28.78	46.00	-17.22	AV	L1
10*	2.242	14.05	11.04	25.09	46.00	-20.91	AV	L1
11*	6.942	13.63	10.99	24.62	50.00	-25.38	AV	L1
12*	17.802	15.44	11.52	26.96	50.00	-23.04	AV	L1



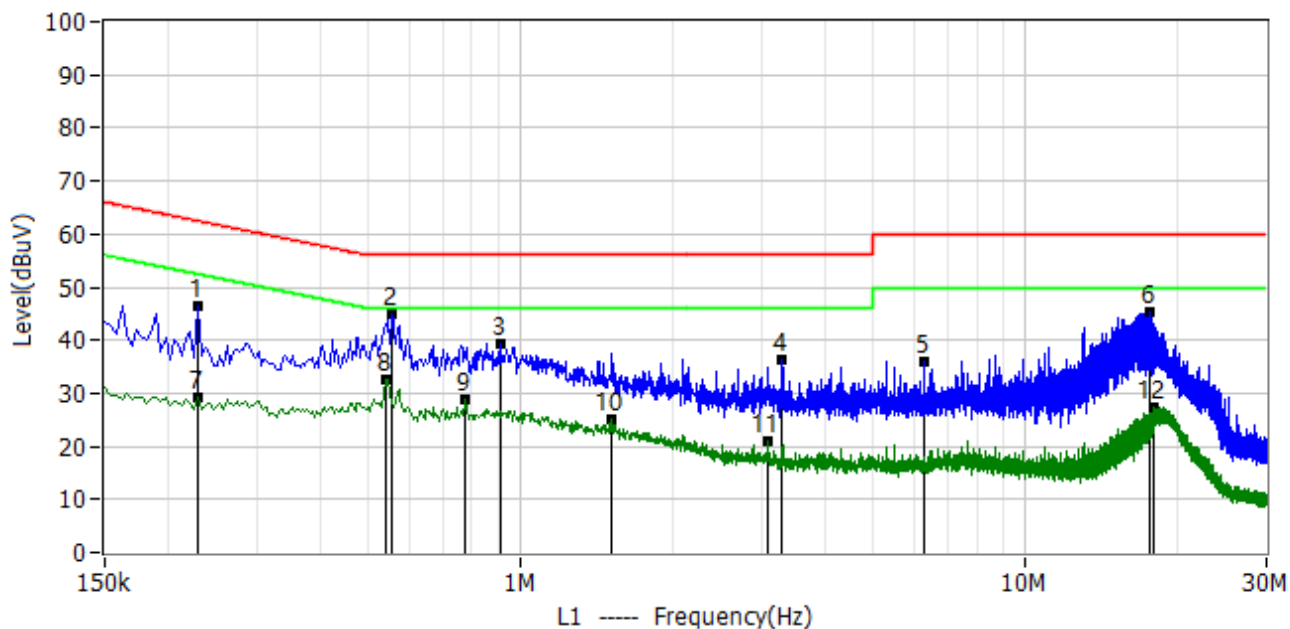
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 20.1°C
M/N: SP60	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-12
Test Mode: Working	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.278	31.79	10.58	42.37	60.88	-18.51	QP	N
2*	0.562	41.59	10.55	52.14	56.00	-3.86	QP	N
3*	0.998	34.30	10.54	44.84	56.00	-11.16	QP	N
4*	1.814	31.15	10.72	41.87	56.00	-14.13	QP	N
5*	3.954	31.42	10.81	42.23	56.00	-13.77	QP	N
6*	13.370	39.45	11.25	50.70	60.00	-9.30	QP	N
7*	0.286	19.51	10.58	30.09	50.64	-20.55	AV	N
8*	0.562	29.62	10.55	40.17	46.00	-5.83	AV	N
9*	1.062	19.41	10.55	29.96	46.00	-16.04	AV	N
10*	1.414	17.65	10.63	28.28	46.00	-17.72	AV	N
11*	3.966	15.55	10.81	26.36	46.00	-19.64	AV	N
12*	14.386	18.90	11.33	30.23	50.00	-19.77	AV	N



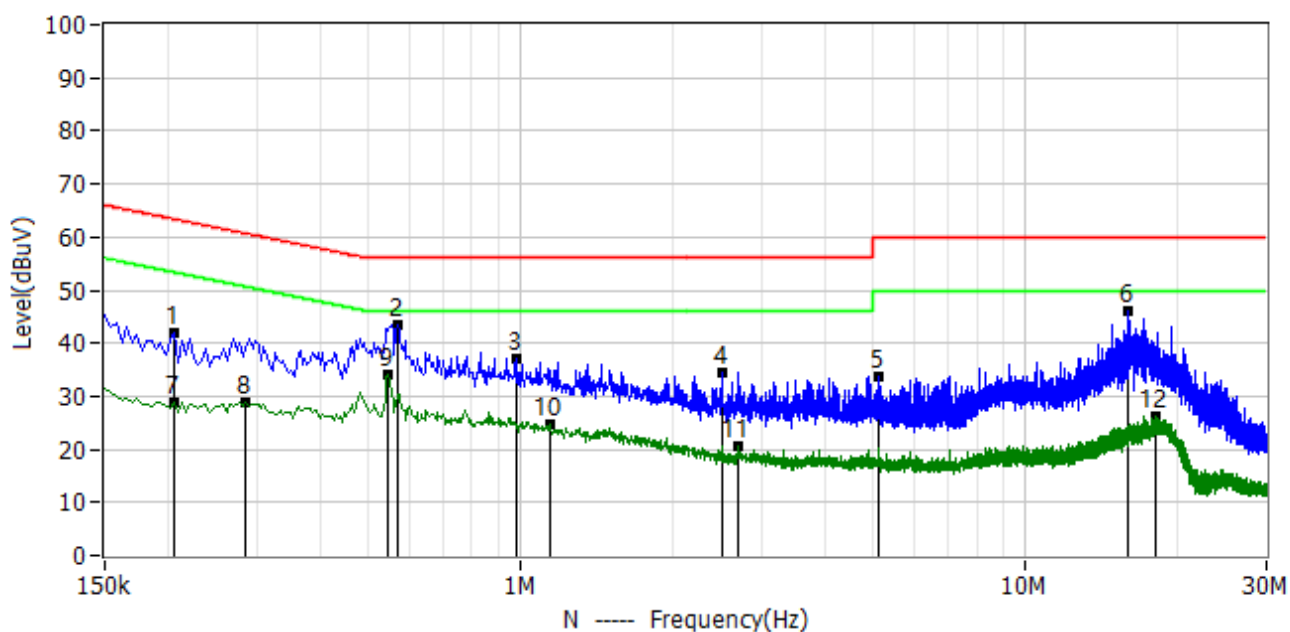
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 20.1°C
M/N: SP60	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-12
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.230	35.77	10.61	46.38	62.45	-16.07	QP	L1
2*	0.554	34.54	10.57	45.11	56.00	-10.89	QP	L1
3*	0.910	28.53	10.65	39.18	56.00	-16.82	QP	L1
4*	3.298	25.20	11.18	36.38	56.00	-19.62	QP	L1
5*	6.294	24.92	11.02	35.94	60.00	-24.06	QP	L1
6*	17.690	33.64	11.52	45.16	60.00	-14.84	QP	L1
7*	0.230	18.61	10.61	29.22	52.45	-23.23	AV	L1
8*	0.542	22.18	10.57	32.75	46.00	-13.25	AV	L1
9*	0.778	18.19	10.60	28.79	46.00	-17.21	AV	L1
10*	1.518	14.07	10.85	24.92	46.00	-21.08	AV	L1
11*	3.098	9.70	11.19	20.89	46.00	-25.11	AV	L1
12*	17.926	15.84	11.53	27.37	50.00	-22.63	AV	L1



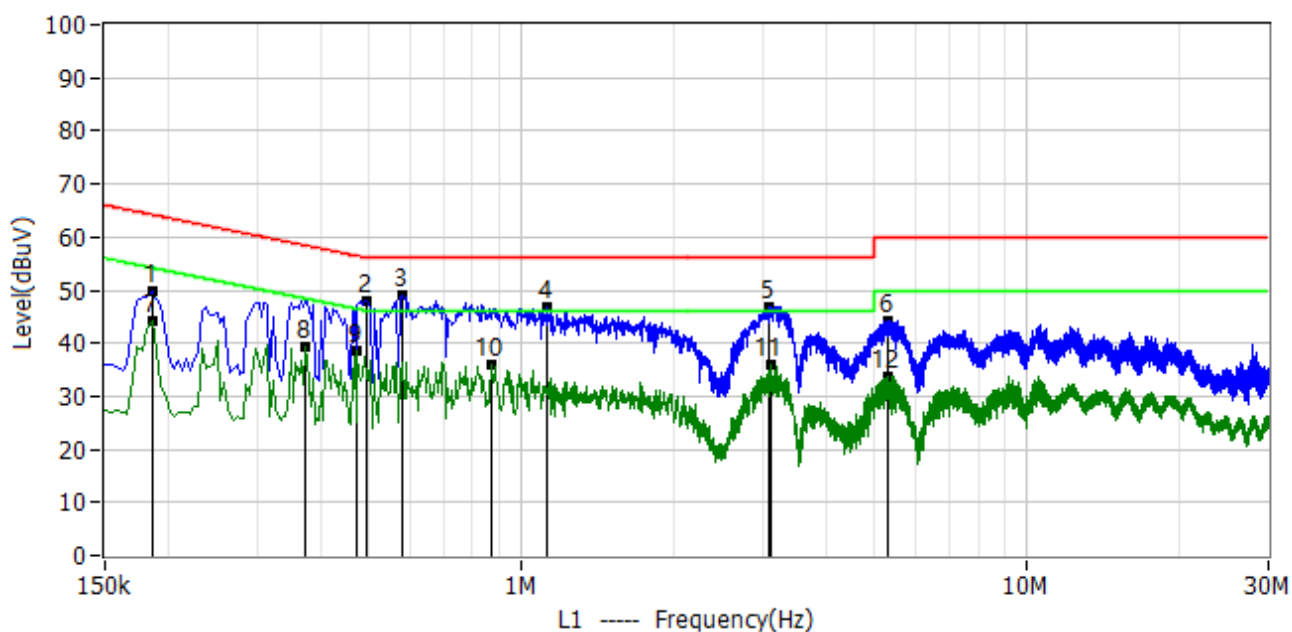
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 20.1°C
M/N: SP60	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-12
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.206	31.36	10.56	41.92	63.37	-21.45	QP	N
2*	0.570	32.96	10.55	43.51	56.00	-12.49	QP	N
3*	0.982	26.69	10.54	37.23	56.00	-18.77	QP	N
4*	2.510	23.61	10.77	34.38	56.00	-21.62	QP	N
5*	5.098	22.78	10.84	33.62	60.00	-26.38	QP	N
6*	15.906	34.70	11.43	46.13	60.00	-13.87	QP	N
7*	0.206	18.32	10.56	28.88	53.37	-24.49	AV	N
8*	0.286	18.24	10.58	28.82	50.64	-21.82	AV	N
9*	0.546	23.56	10.54	34.10	46.00	-11.90	AV	N
10*	1.138	14.00	10.57	24.57	46.00	-21.43	AV	N
11*	2.698	9.69	10.78	20.47	46.00	-25.53	AV	N
12*	18.090	14.78	11.53	26.31	50.00	-23.69	AV	N



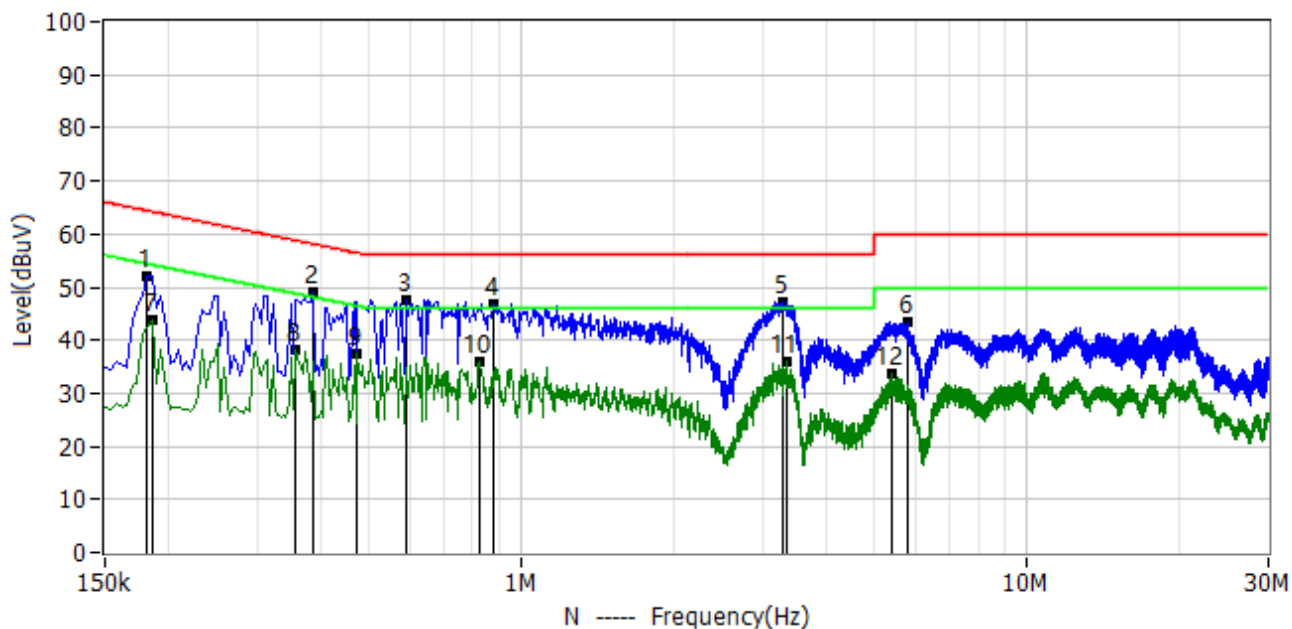
Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 22.8°C
M/N: SP60	Humidity: 34%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-17
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.186	39.18	10.61	49.79	64.21	-14.43	QP	L1
2*	0.494	37.46	10.57	48.03	56.10	-8.07	QP	L1
3*	0.582	38.35	10.57	48.92	56.00	-7.08	QP	L1
4*	1.126	35.95	10.73	46.68	56.00	-9.32	QP	L1
5*	3.086	35.78	11.19	46.97	56.00	-9.03	QP	L1
6*	5.282	33.24	11.07	44.31	60.00	-15.69	QP	L1
7*	0.186	33.46	10.61	44.07	54.21	-10.15	AV	L1
8*	0.374	28.70	10.57	39.27	48.41	-9.14	AV	L1
9*	0.474	27.89	10.57	38.46	46.44	-7.98	AV	L1
10*	0.874	25.27	10.64	35.91	46.00	-10.09	AV	L1
11*	3.122	24.61	11.19	35.80	46.00	-10.20	AV	L1
12*	5.322	22.80	11.07	33.87	50.00	-16.13	AV	L1



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 22.8°C
M/N: SP60	Humidity: 34%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-17
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.182	41.66	10.56	52.22	64.39	-12.17	QP	N
2*	0.386	38.49	10.59	49.08	58.15	-9.07	QP	N
3*	0.594	37.18	10.55	47.73	56.00	-8.27	QP	N
4*	0.878	36.41	10.55	46.96	56.00	-9.04	QP	N
5*	3.298	36.31	10.79	47.10	56.00	-8.90	QP	N
6*	5.782	32.60	10.83	43.43	60.00	-16.57	QP	N
7*	0.186	33.32	10.56	43.88	54.21	-10.33	AV	N
8*	0.358	27.79	10.59	38.38	48.77	-10.39	AV	N
9*	0.474	26.86	10.55	37.41	46.44	-9.04	AV	N
10*	0.826	25.28	10.55	35.83	46.00	-10.17	AV	N
11*	3.338	25.28	10.79	36.07	46.00	-9.93	AV	N
12*	5.406	22.81	10.83	33.64	50.00	-16.36	AV	N



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS

Below 1 GHz

Frequency (MHz)	Class A	Class B
	Field strength (dBuV/m) (at 3m)	Field strength (dBuV/m) (at 3m)
30 - 88	49.5	40
88 - 216	53.9	43.5
216 - 960	56.9	46
Above 960	60	54

Above 1 GHz

Frequency (MHz)	Class A		Class B	
	Field strength (dBuV/m) (at 3m)		Field strength (dBuV/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	80	60	74	54

Frequency Range of Radiated Disturbance Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

Note:

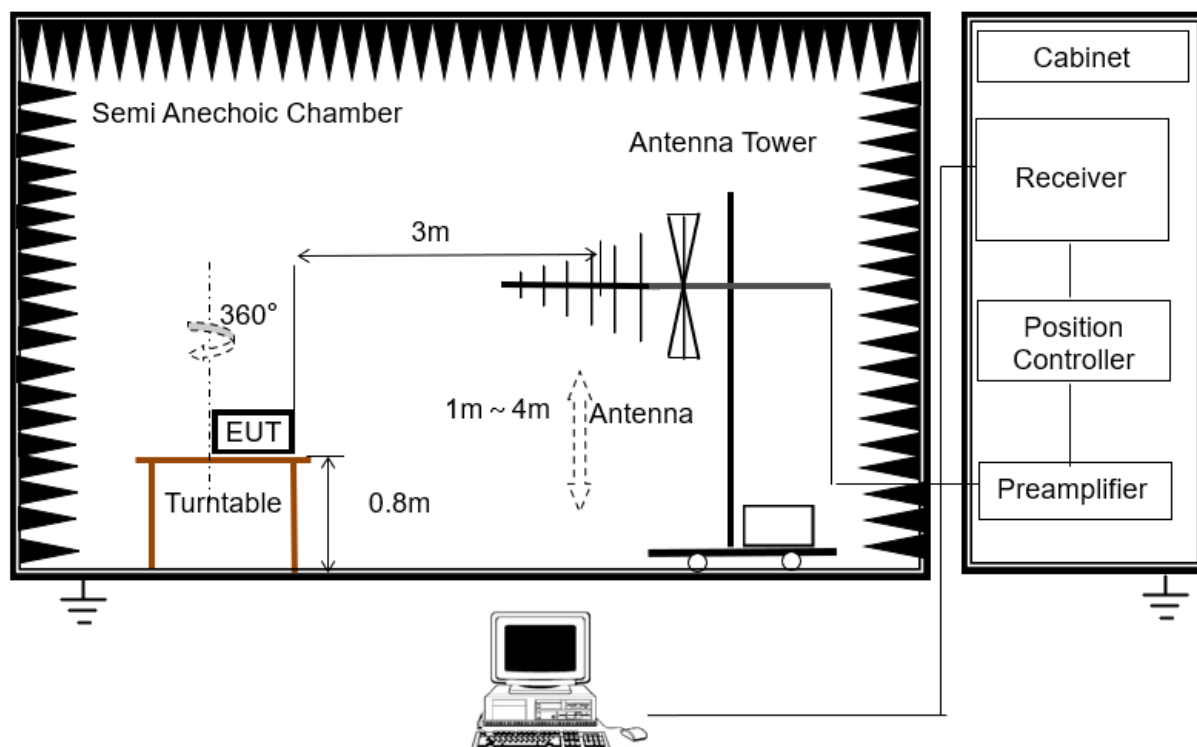
- (1) The limit for radiated test was performed according to FCC Part 15, Subpart B;
- (2) The tighter limit applies at the band edges;
- (3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use),
Margin Level = Measurement Value - Limit Value.

3.2.2 TEST PROCEDURE

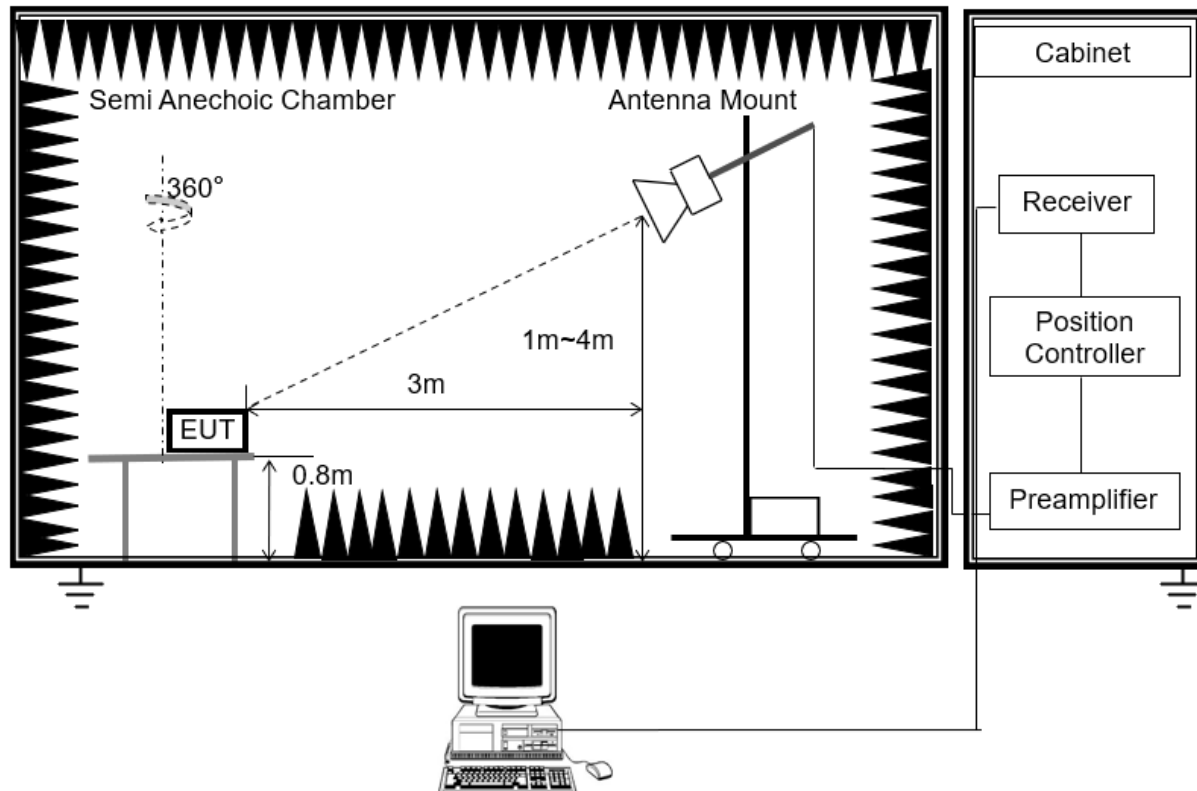
- a. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. EUT as the center to the edge of the auxiliary device, the distance from the maximum edge to the center of the antenna is 3 meter.
- c. The height of antenna is varied from 1 meter to 4 meter 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.
- d. 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 meter and the rotatable table was turned from 0 degrees to 360 degree to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



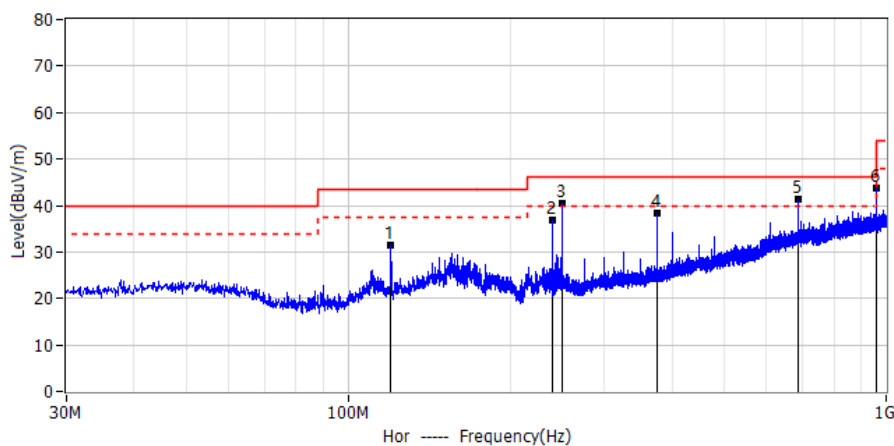
For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration



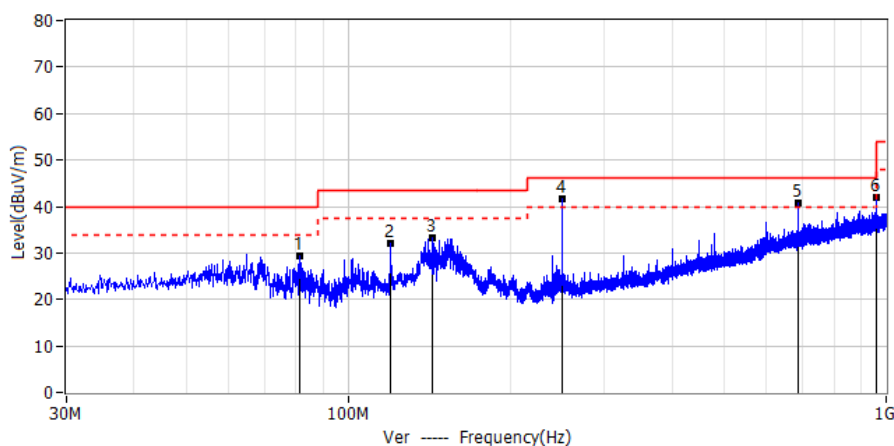
3.2.4 TEST RESULTS

Below 1 GHz

Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 21.2°C
M/N: SP60	Humidity: 45%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-15
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



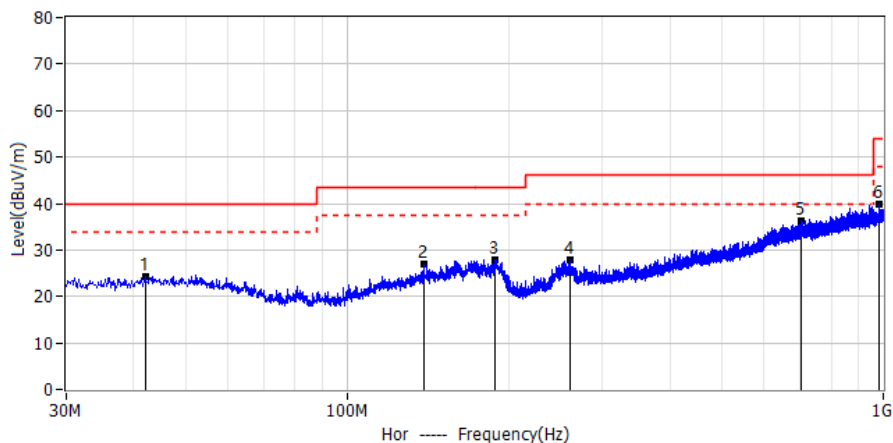
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	120.089	12.07	19.33	31.40	43.50	-12.10	QP	Hor
2*	240.005	18.00	18.80	36.80	46.00	-9.20	QP	Hor
3*	249.948	20.96	19.53	40.49	46.00	-5.51	QP	Hor
4*	374.956	14.46	23.77	38.23	46.00	-7.77	QP	Hor
5*	687.539	11.26	30.09	41.35	46.00	-4.65	QP	Hor
6*	960.109	10.37	33.40	43.77	54.00	-10.23	QP	Hor



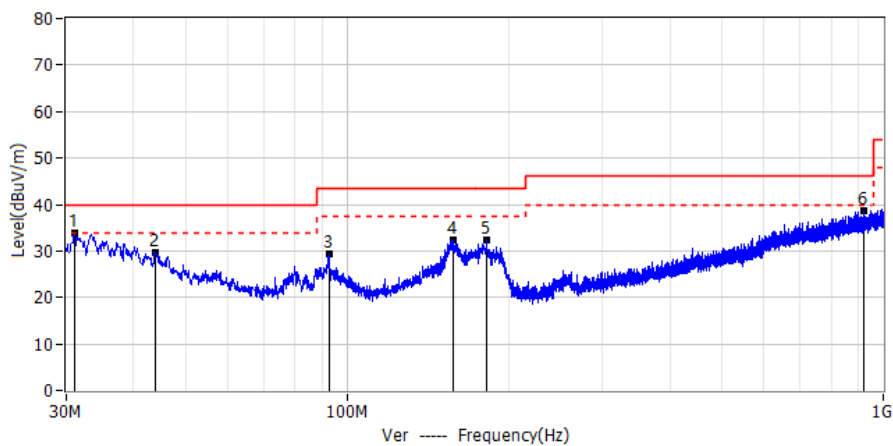
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	81.168	13.12	16.16	29.28	40.00	-10.72	QP	Ver
2*	120.089	12.76	19.33	32.09	43.50	-11.41	QP	Ver
3*	143.248	12.00	21.34	33.34	43.50	-10.16	QP	Ver
4*	249.948	21.98	19.53	41.51	46.00	-4.49	QP	Ver
5*	687.539	10.61	30.09	40.70	46.00	-5.30	QP	Ver
6*	960.109	8.55	33.40	41.95	54.00	-12.05	QP	Ver



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 27°C
M/N: SP60	Humidity: 51%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-11
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording	
Note:	



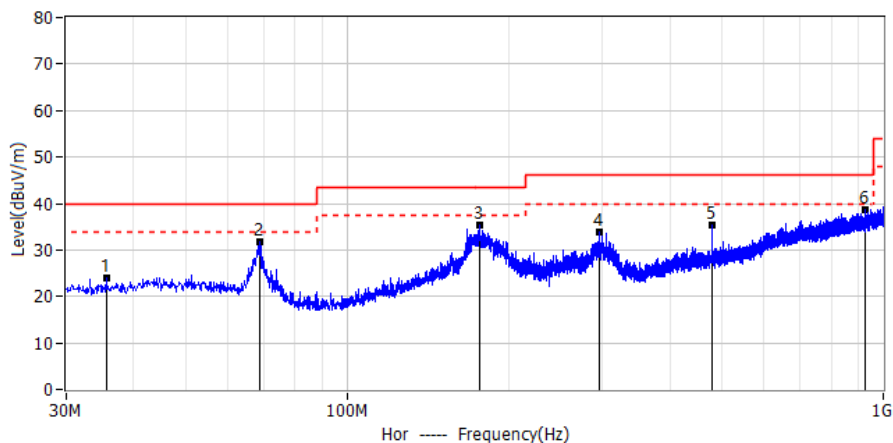
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	42.125	3.75	20.53	24.28	40.00	-15.72	QP	Hor
2*	138.883	5.97	20.91	26.88	43.50	-16.62	QP	Hor
3*	188.838	9.72	18.25	27.97	43.50	-15.53	QP	Hor
4*	260.496	7.69	20.14	27.83	46.00	-18.17	QP	Hor
5*	704.514	5.61	30.77	36.38	46.00	-9.62	QP	Hor
6*	984.238	5.77	34.20	39.97	54.00	-14.03	QP	Hor



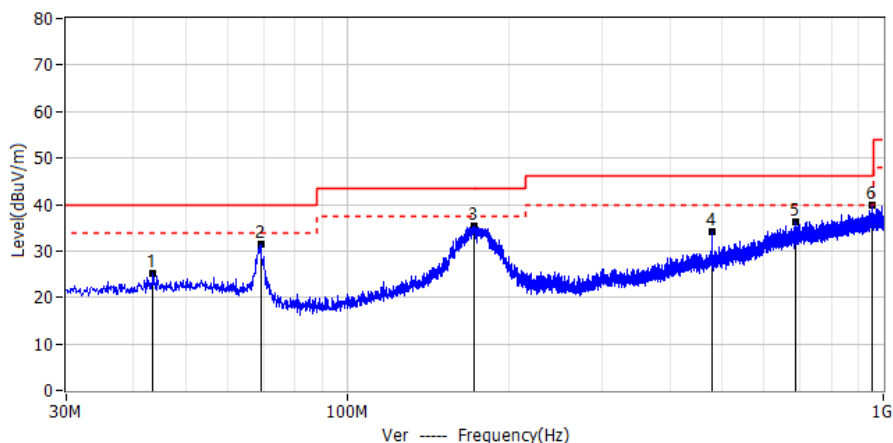
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	31.091	14.46	19.48	33.94	40.00	-6.06	QP	Ver
2*	43.944	9.03	20.72	29.75	40.00	-10.25	QP	Ver
3*	92.565	12.97	16.42	29.39	43.50	-14.11	QP	Ver
4*	158.161	10.85	21.65	32.50	43.50	-11.00	QP	Ver
5*	182.048	13.23	19.03	32.26	43.50	-11.24	QP	Ver
6*	918.035	5.39	33.17	38.56	46.00	-7.44	QP	Ver



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 27°C
M/N: SP60	Humidity: 51%RH
Test Voltage: Battery	Test Data: 2024-12-11
Test Mode: USB Data Transmission	
Note:	



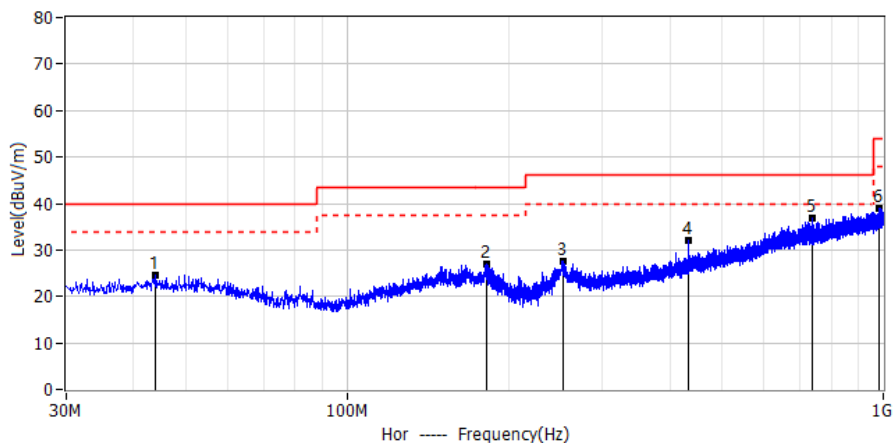
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	35.578	4.41	19.69	24.10	40.00	-15.90	QP	Hor
2*	68.679	13.87	18.04	31.91	40.00	-8.09	QP	Hor
3*	176.591	15.80	19.50	35.30	43.50	-8.20	QP	Hor
4*	294.931	12.70	21.20	33.90	46.00	-12.10	QP	Hor
5*	479.959	8.88	26.59	35.47	46.00	-10.53	QP	Hor
6*	923.613	5.58	33.09	38.67	46.00	-7.33	QP	Hor



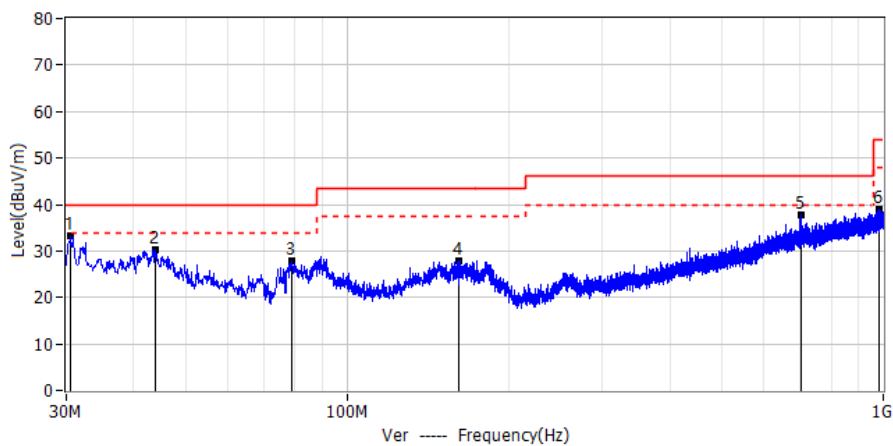
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	43.459	4.26	20.76	25.02	40.00	-14.98	QP	Ver
2*	69.043	13.53	18.00	31.53	40.00	-8.47	QP	Ver
3*	172.954	15.12	20.31	35.43	43.50	-8.07	QP	Ver
4*	480.080	7.60	26.59	34.19	46.00	-11.81	QP	Ver
5*	688.266	6.02	30.11	36.13	46.00	-9.87	QP	Ver
6*	954.410	5.91	33.85	39.76	46.00	-6.24	QP	Ver



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 27°C
M/N: SP60	Humidity: 51%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-11
Test Mode: Working	
Note:	



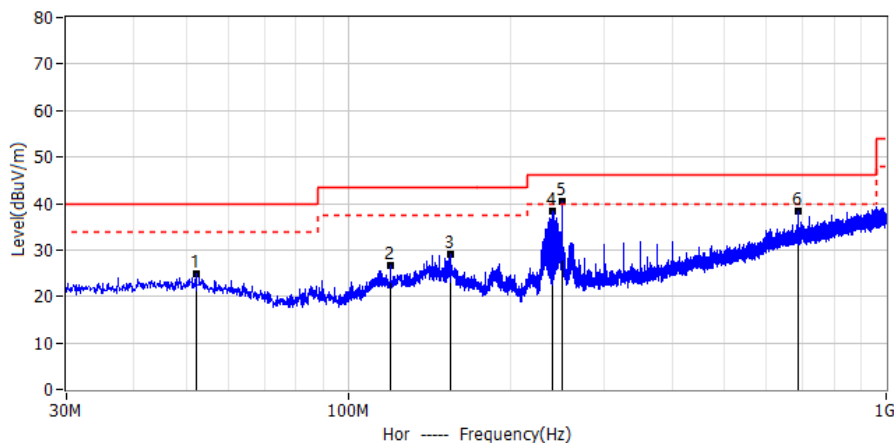
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	43.944	3.86	20.72	24.58	40.00	-15.42	QP	Hor
2*	182.169	8.05	19.02	27.07	43.50	-16.43	QP	Hor
3*	253.221	7.56	19.93	27.49	46.00	-18.51	QP	Hor
4*	433.156	6.86	25.21	32.07	46.00	-13.93	QP	Hor
5*	737.009	6.11	30.70	36.81	46.00	-9.19	QP	Hor
6*	980.721	4.92	33.92	38.84	54.00	-15.16	QP	Hor



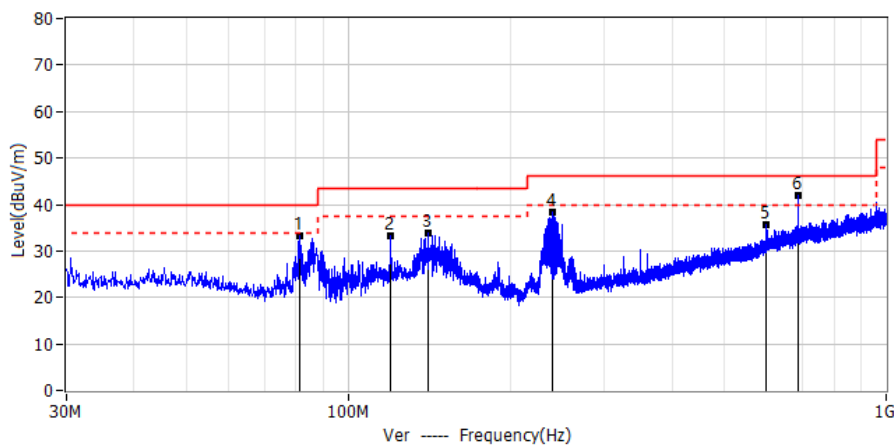
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	30.606	13.73	19.43	33.16	40.00	-6.84	QP	Ver
2*	43.944	9.62	20.72	30.34	40.00	-9.66	QP	Ver
3*	78.985	11.52	16.49	28.01	40.00	-11.99	QP	Ver
4*	161.435	6.52	21.30	27.82	43.50	-15.68	QP	Ver
5*	703.180	6.95	30.72	37.67	46.00	-8.33	QP	Ver
6*	982.661	4.87	34.07	38.94	54.00	-15.06	QP	Ver



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 21.2°C
M/N: SP60	Humidity: 45%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-15
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



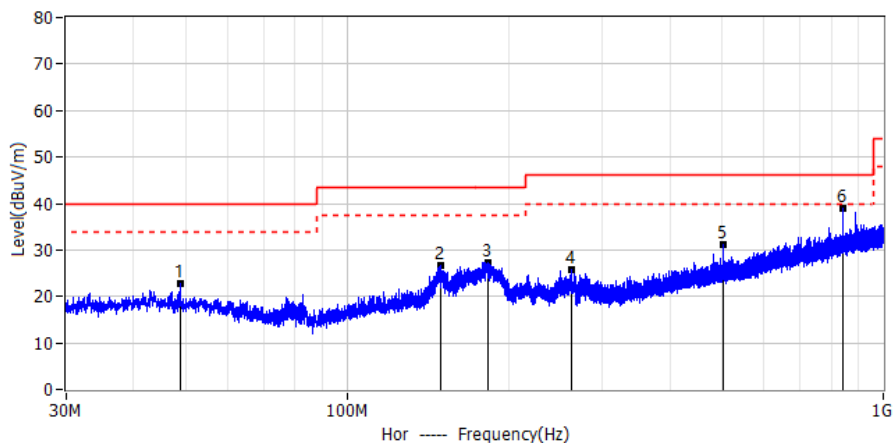
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	52.189	4.56	20.43	24.99	40.00	-15.01	QP	Hor
2*	119.968	7.30	19.32	26.62	43.50	-16.88	QP	Hor
3*	154.766	7.73	21.38	29.11	43.50	-14.39	QP	Hor
4*	240.005	19.47	18.80	38.27	46.00	-7.73	QP	Hor
5*	249.948	20.88	19.53	40.41	46.00	-5.59	QP	Hor
6*	687.539	8.28	30.09	38.37	46.00	-7.63	QP	Hor



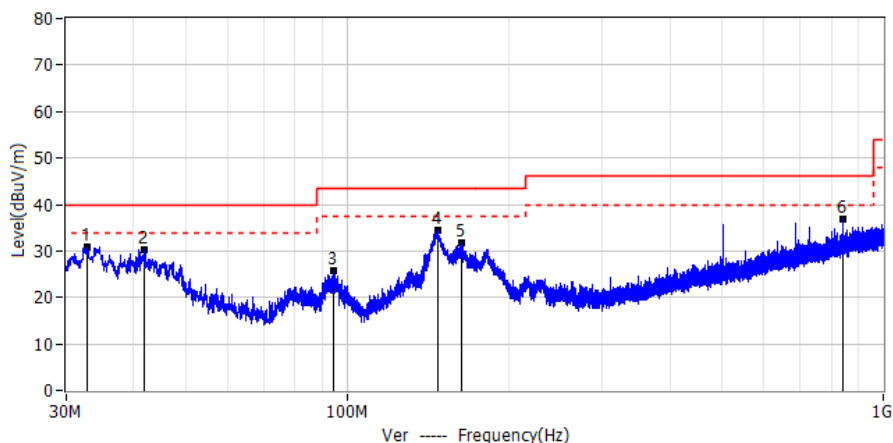
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	81.168	17.14	16.16	33.30	40.00	-6.70	QP	Ver
2*	119.968	14.00	19.32	33.32	43.50	-10.18	QP	Ver
3*	141.186	12.66	21.20	33.86	43.50	-9.64	QP	Ver
4*	240.005	19.46	18.80	38.26	46.00	-7.74	QP	Ver
5*	599.996	6.81	28.82	35.63	46.00	-10.37	QP	Ver
6*	687.539	11.95	30.09	42.04	46.00	-3.96	QP	Ver



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 27°C
M/N: SP60	Humidity: 51%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-12-13
Test Mode: Charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording	
Note:	



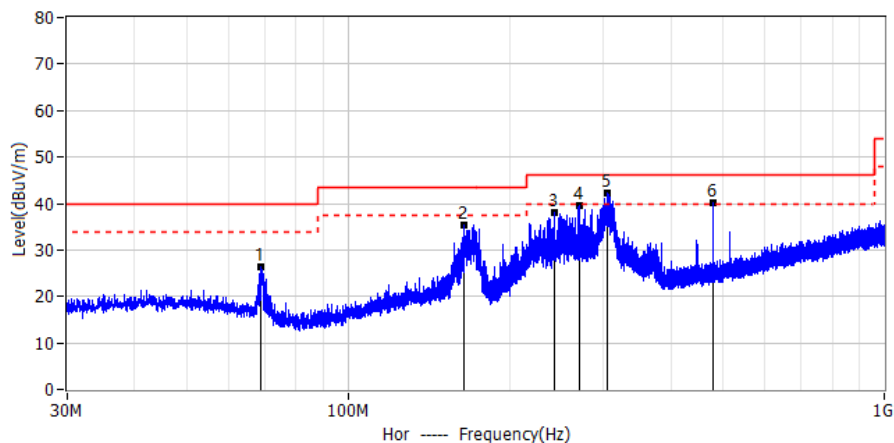
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	48.818	38.18	-15.54	22.64	40.00	-17.36	QP	Hor
2*	149.795	39.95	-13.27	26.68	43.50	-16.82	QP	Hor
3*	183.551	43.62	-16.24	27.38	43.50	-16.12	QP	Hor
4*	261.733	41.35	-15.52	25.83	46.00	-20.17	QP	Hor
5*	503.991	39.49	-8.45	31.04	46.00	-14.96	QP	Hor
6*	840.096	40.76	-1.94	38.82	46.00	-7.18	QP	Hor



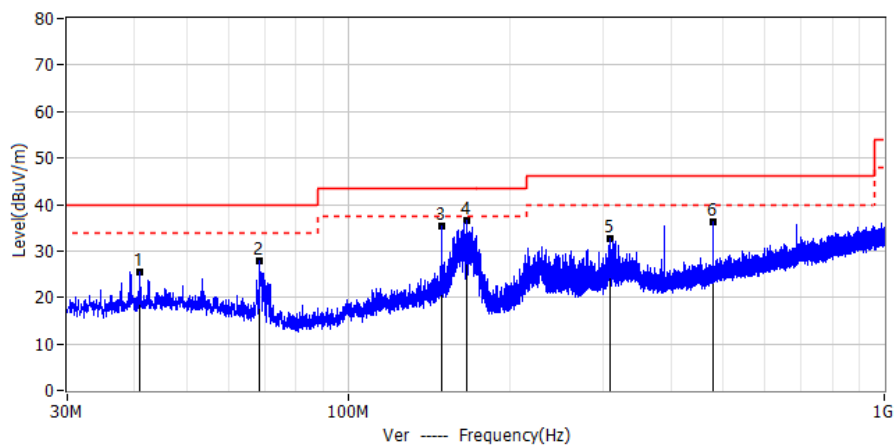
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	32.716	47.80	-16.81	30.99	40.00	-9.01	QP	Ver
2*	41.883	46.12	-15.74	30.38	40.00	-9.62	QP	Ver
3*	94.408	44.01	-18.29	25.72	43.50	-17.78	QP	Ver
4*	147.419	47.59	-13.12	34.47	43.50	-9.03	QP	Ver
5*	163.860	45.37	-13.66	31.71	43.50	-11.79	QP	Ver
6*	839.999	38.66	-1.94	36.72	46.00	-9.28	QP	Ver



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 27°C
M/N: SP60	Humidity: 51%RH
Test Voltage: Battery	Test Data: 2024-12-13
Test Mode: USB Data Transmission	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	68.655	44.14	-17.85	26.29	40.00	-13.71	QP	Hor
2*	164.442	49.15	-13.75	35.40	43.50	-8.10	QP	Hor
3*	242.624	54.42	-16.22	38.20	46.00	-7.80	QP	Hor
4*	269.493	55.08	-15.66	39.42	46.00	-6.58	QP	Hor
5*	304.607	56.75	-14.37	42.38	46.00	-3.62	QP	Hor
6*	479.983	49.02	-8.95	40.07	46.00	-5.93	QP	Hor

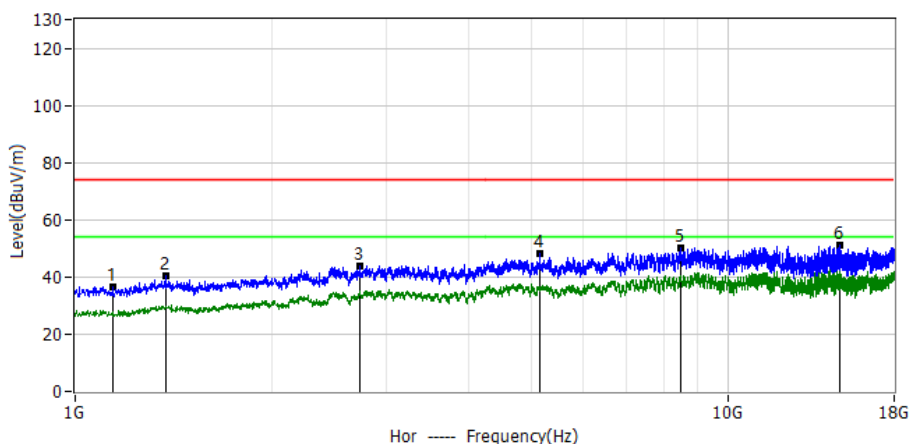


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	40.961	41.42	-15.85	25.57	40.00	-14.43	QP	Ver
2*	68.606	45.79	-17.84	27.95	40.00	-12.05	QP	Ver
3*	149.650	48.65	-13.24	35.41	43.50	-8.09	QP	Ver
4*	166.770	50.65	-14.02	36.63	43.50	-6.87	QP	Ver
5*	308.196	47.02	-14.34	32.68	46.00	-13.32	QP	Ver
6*	480.032	45.15	-8.95	36.20	46.00	-9.80	QP	Ver

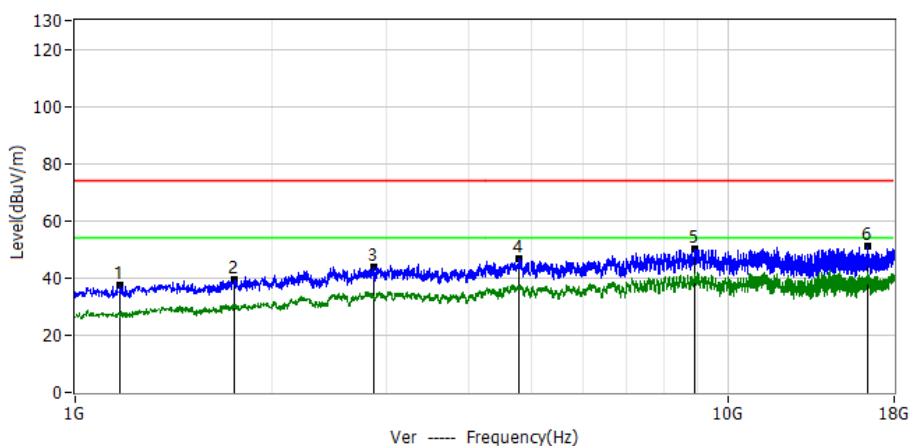


Above 1GHz

Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 22.8°C
M/N: SP60	Humidity: 34%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-17
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



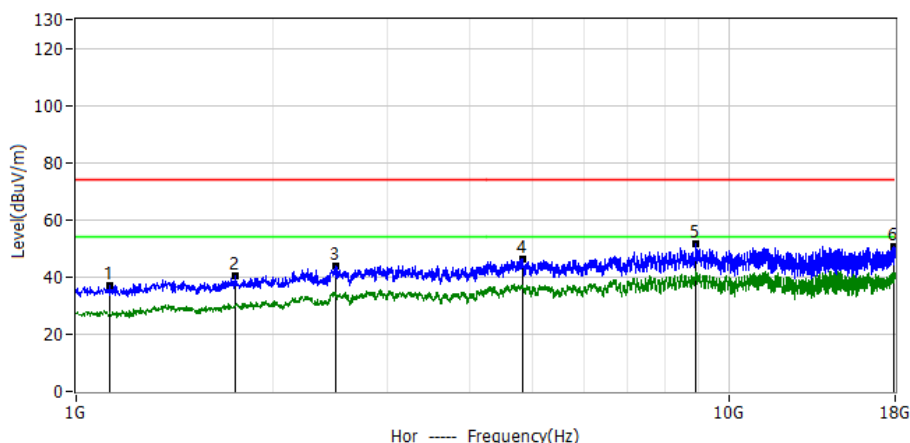
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1142.4000	60.23	-23.51	36.72	74.00	-37.28	PK	Hor
2*	1374.0000	62.29	-21.67	40.62	74.00	-33.38	PK	Hor
3*	2731.9000	53.90	-10.13	43.77	74.00	-30.23	PK	Hor
4*	5150.1000	55.54	-7.51	48.03	74.00	-25.97	PK	Hor
5*	8454.5000	54.75	-4.67	50.08	74.00	-23.92	PK	Hor
6*	14825.2000	50.45	0.53	50.98	74.00	-23.02	PK	Hor



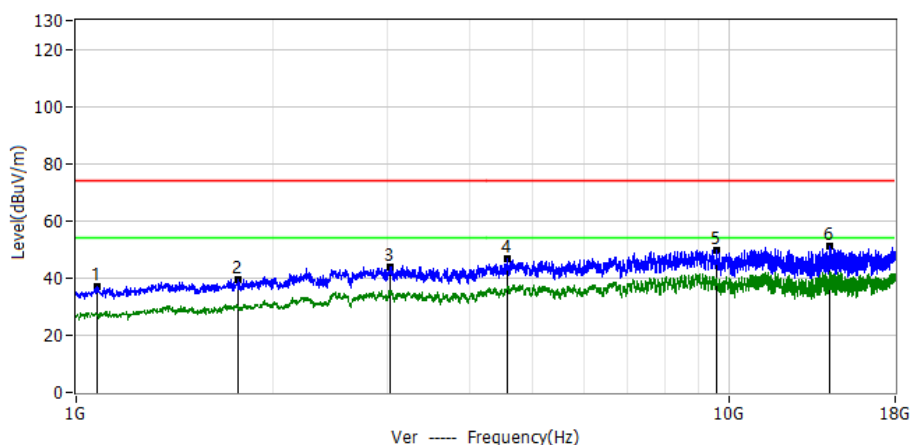
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1170.0000	60.86	-23.27	37.59	74.00	-36.41	PK	Ver
2*	1752.2000	58.52	-18.87	39.65	74.00	-34.35	PK	Ver
3*	2861.5000	53.36	-9.47	43.89	74.00	-30.11	PK	Ver
4*	4782.5000	53.62	-6.78	46.84	74.00	-27.16	PK	Ver
5*	8902.9000	53.87	-3.85	50.02	74.00	-23.98	PK	Ver
6*	16391.4000	50.22	0.77	50.99	74.00	-23.01	PK	Ver



Project: LGT24L008	Test Engineer: LiuH
EUT: Smart Pos Payment Terminal	Temperature: 21.2°C
M/N: SP60	Humidity: 45%RH
Test Voltage: AC 120V/60Hz	Test Data: 2025-01-15
Test Mode: Dock charging+GSM link+BT+Wi-Fi+GPS+NFC+Camera recording+USB+LAN	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1123.2000	60.80	-23.68	37.12	74.00	-36.88	PK	Hor
2*	1754.4000	59.41	-18.85	40.56	74.00	-33.44	PK	Hor
3*	2502.4000	55.04	-11.29	43.75	74.00	-30.25	PK	Hor
4*	4831.4000	52.93	-6.83	46.10	74.00	-27.90	PK	Hor
5*	8909.2000	55.53	-3.84	51.69	74.00	-22.31	PK	Hor
6*	17874.6000	48.58	1.96	50.54	74.00	-23.46	PK	Hor



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1078.6000	60.85	-24.07	36.78	74.00	-37.22	PK	Ver
2*	1769.2000	58.19	-18.71	39.48	74.00	-34.52	PK	Ver
3*	3020.9000	52.70	-8.78	43.92	74.00	-30.08	PK	Ver
4*	4587.0000	53.43	-6.59	46.84	74.00	-27.16	PK	Ver
5*	9580.7000	53.61	-3.97	49.64	74.00	-24.36	PK	Ver
6*	14260.0000	50.59	0.76	51.35	74.00	-22.65	PK	Ver

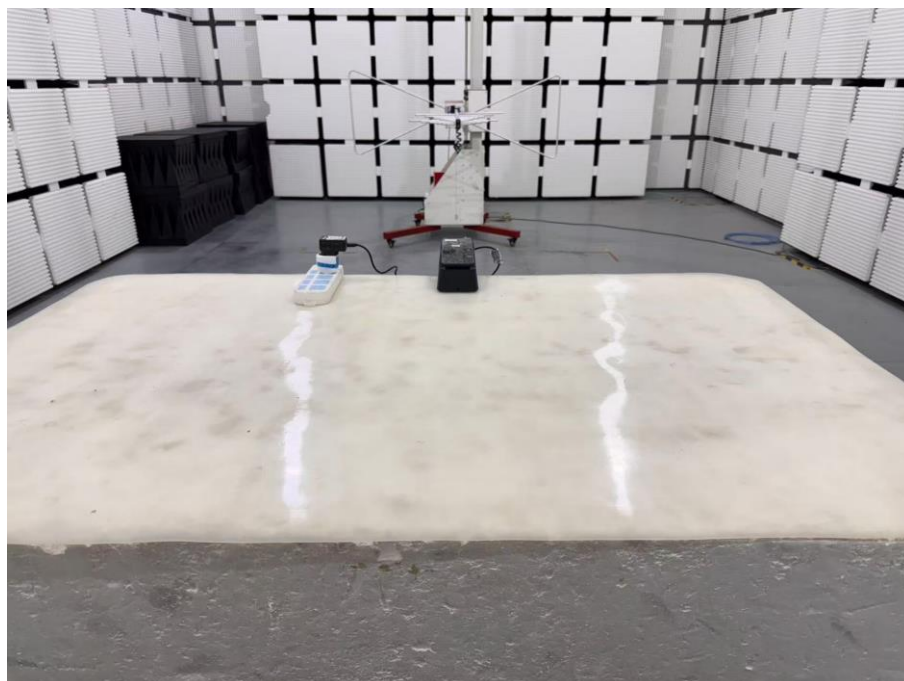


APPENDIX I - TEST SETUP

Set-up for Conducted Emission on AC Mains (CE)



Set-up for Radiated Emission (RE), Below 1GHz



Set-up for Radiated Emission (RE), Above 1GHz





APPENDIX II - External Photographs of EUT Constructional Details

Note: Please see the attached SP60_FCC EXT/ INT EUT Photos.

※※※※※END OF THE REPORT※※※※※