



# EMC TEST REPORT

**Applicant** SAGETEL (HONG KONG) CO. LIMITED

**FCC ID** 2AT2L-HINTO-LITE

**Product** 4G Feature Phone

**Brand** altice; Sagetel

**Model** altice F4; Sagetel Hinto lite

**Report No.** R2205A0384-E1

**Issue Date** June 1, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC Code CFR47 Part15B (2021)/ ANSI C63.4-2014**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

*Wei Liu*

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*Guangchang Fan*

*Approved by: Guangchang Fan*

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## Summary of measurement results

Number	Test Case	Clause in FCC Rules	Conclusion
1	Radiated Emission	FCC Part15.109, ANSI C63.4-2014	PASS
2	Conducted Emission	FCC Part15.107, ANSI C63.4-2014	PASS
Date of Testing: May 9, 2022 ~ May 22, 2022			
Date of Sample Received: May 6, 2022			
Note: All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			



## 1 Test Laboratory

### 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

### 1.2 Test facility

#### **FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

#### **A2LA (Certificate Number: 3857.01)**

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

### 1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.  
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City: Shanghai  
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E-mail: fanguangchang@ta-shanghai.com



## 2 General Description of Equipment under Test

### 2.1 Applicant and Manufacturer Information

Applicant	SAGETEL (HONG KONG) CO. LIMITED
Applicant address	FLAT D39. 8/F WAH LOK IND CTR PHASE 2, 31-35 SHAN MEI ST FO TAN SHATIN NT
Manufacturer	SAGETEL (HONG KONG) CO. LIMITED
Manufacturer address	FLAT D39. 8/F WAH LOK IND CTR PHASE 2, 31-35 SHAN MEI ST FO TAN SHATIN NT

### 2.2 General information

EUT Description			
Device Type	Portable Device		
Model	altice F4; Sagetel Hinto lite		
IMEI	352847500227382		
HW Version	V01E		
SW Version	ALTICE_GX2421L_SS_L_V01_FCC_220428		
Power Rating	DC 3.7V from battery or DC 5.0V from Adapter.		
Connecting I/O Port(s)	Please refer to the User's Manual.		
Antenna Type	PIFA Antenna		
Frequency	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824 ~ 849	869 ~ 894
	GSM 1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 5	824 ~ 849	869 ~ 894
	Bluetooth	2400 ~ 2483.5	2400 ~ 2483.5
EUT Accessory			
Adapter	Manufacturer: DongGuan AoHai Power Technology Co.Ltd. Model: A31A-050055U-US1 Input: 100-240V~50/60Hz 0.2A Output: 5.0V 550mAh		



Battery	Manufacturer: Shenzhen Aerospace Electronic.Co.Ltd Model: 178245411 DC 3.7V, 800mAh, 2.96Wh
Earphone	Manufacturer: Baoshan Dahuahaihan Technology Co.,Ltd. Model: 3.5_black_stereophony without mic_HTC
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. The customer claims that altice F4 and Sagetel Hinto lite are only different in model, and the others are the same.	



## 2.3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

### Test standards

**FCC Code CFR47 Part15B (2021)**

**ANSI C63.4-2014**



## 2.4 Test Mode

Test Mode	
Mode 1	Adapter +EUT+ Front camera On +EARPHONR+ GSM/WCDMA/LTE/BT receiver
Mode 2	Adapter +EUT+ Front camera On + EARPHONR+GSM/WCDMA/LTE/BT Traffic
Mode 3	Adapter +EUT+ FM + EARPHONR+GSM/WCDMA/LTE/BT receiver
Mode 4	Adapter +EUT+ FM + EARPHONR+GSM/WCDMA/LTE /BT Traffic
Mode 5	Adapter +EUT+ PLAY MUSIC + EARPHONR+GSM/WCDMA/LTE/BT receiver
Mode 6	Adapter +EUT+ PLAY MUSIC + EARPHONR+GSM/WCDMA/LTE/BT Traffic

During the test, the preliminary test was performed in all modes with all adapters, earphone and batteries; mode 1 is selected as the worst condition. The test data of the worst-case condition was recorded in this report.



### 3 Test Case Results

#### 3.1 Radiated Emission

##### Ambient condition

Temperature	Relative humidity	Pressure
15°C~35°C	30%~60%	101.5kPa

##### Methods of Measurement

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier. During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated signal level.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. During the test, the EUT is worked at maximum output power.

Set the spectrum analyzer in the following:

Below 1GHz:

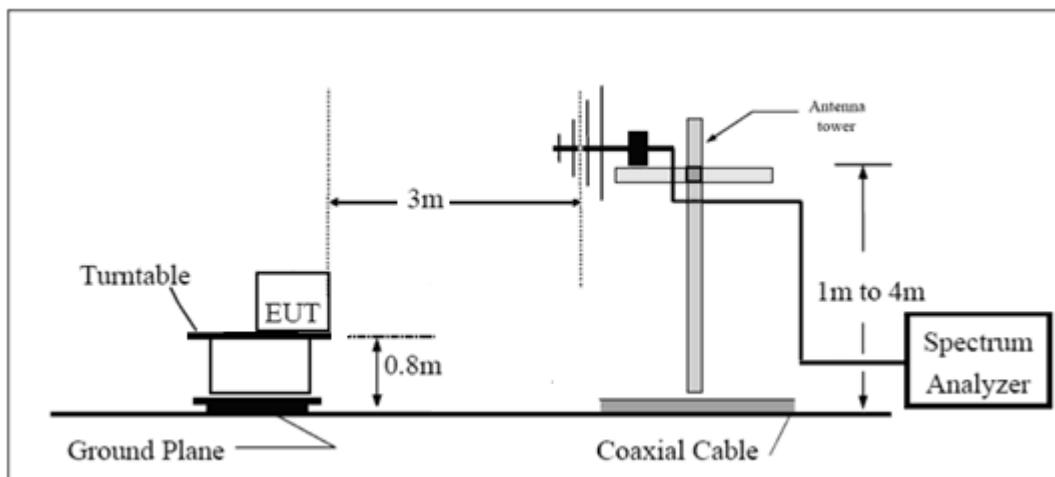
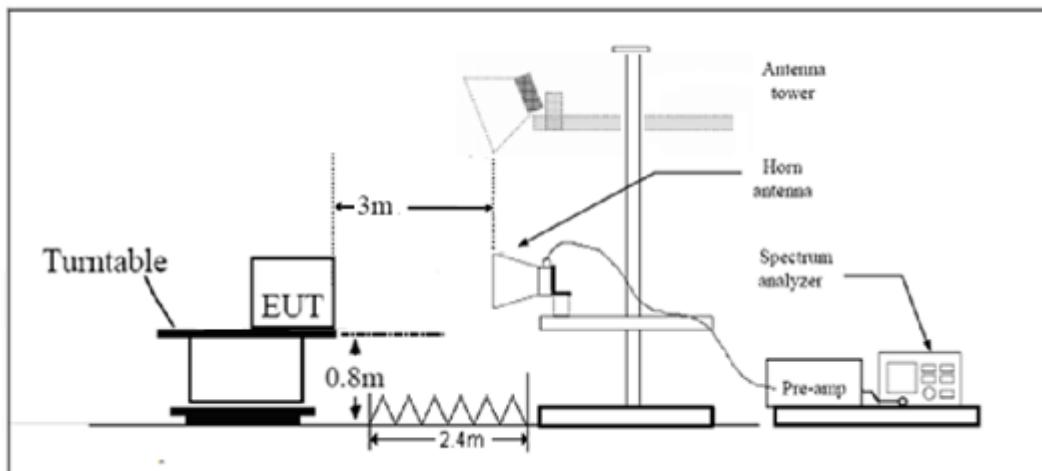
RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK Detector: RBW=1MHz / VBW=3MHz/ Sweep=AUTO

(b) AVERAGE Detector: RBW=1MHz / VBW=3MHz / Sweep=AUTO

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

**Test Setup****Below 1GHz****Above 1GHz**

Note: Area side: 2.4mX3.6m

Antenna Tower meets ANSI C63.4 requirements for measurements above 1 GHz by keeping the antenna aimed at the EUT during the antenna's ascent/ descent along the antenna mast.

**Limits****Class B**

Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5 <sup>th</sup> harmonic of the highest frequency or 40GHz, which is lower	54 74	Average Peak

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

Frequency	Uncertainty
30MHz~200MHz	4.17 dB
200MHz~1000MHz	4.84 dB
1GHz~18GHz	4.35 dB

## Test Results

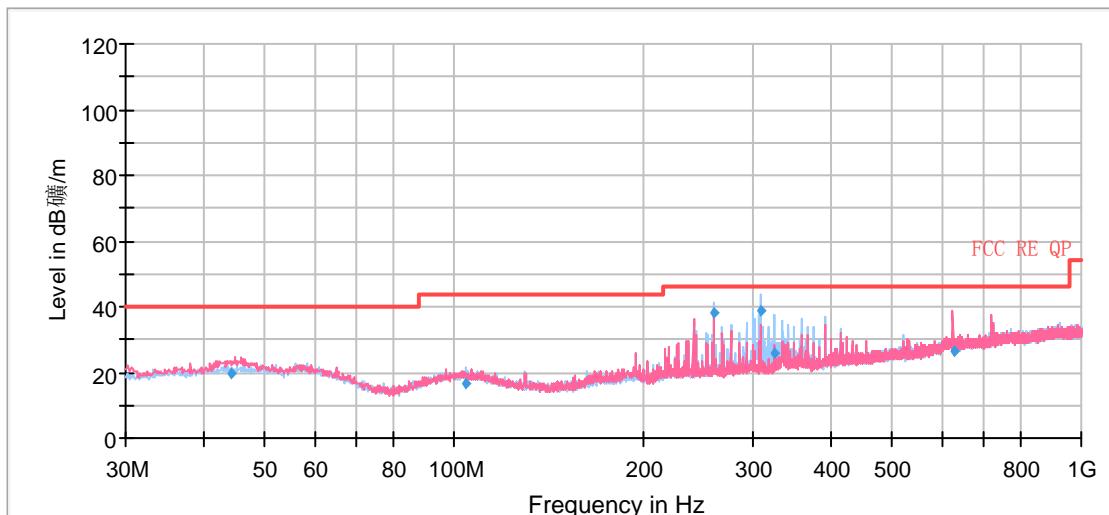
Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier.

The following graphs display the maximum values of horizontal and vertical by software.

For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.

A font (Level in dB $\mu$ V/m) in the test plot =(level in dB $\mu$ V/m)

### Mode 1 is the worst case

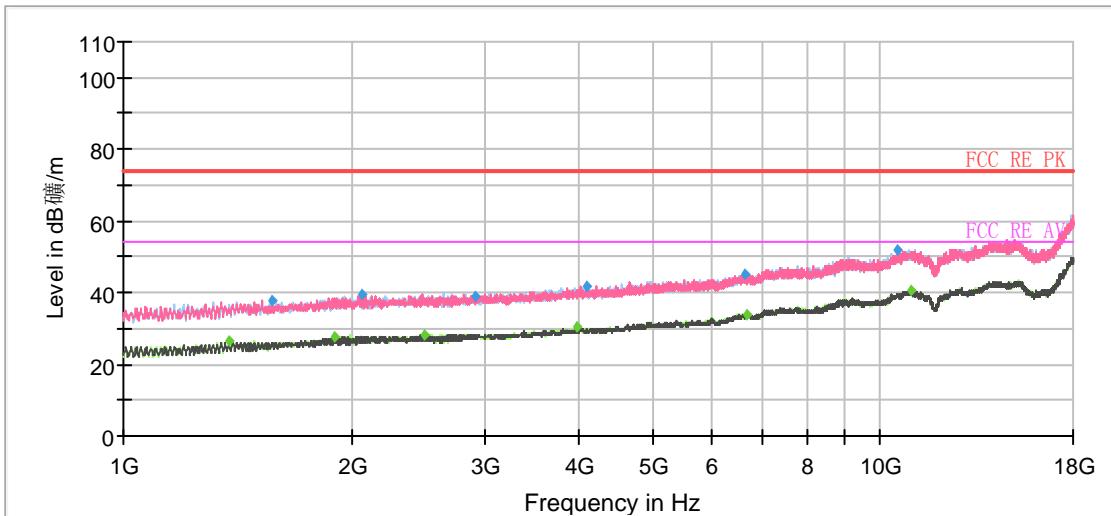


Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
44.27	19.73	40.00	20.27	1000.00	125.0	V	77.00	14
104.53	16.51	43.50	26.99	1000.00	111.0	H	100.00	13
260.01	37.93	46.00	8.07	1000.00	125.0	H	101.00	14
308.59	38.56	46.00	7.44	1000.00	100.0	H	317.00	15
325.08	26.00	46.00	20.00	1000.00	105.0	H	279.00	16
625.70	26.50	46.00	19.50	1000.00	125.0	V	284.00	22

**Remark:** 1. Correction Factor = Antenna factor + Insertion loss(cable loss+amplifier gain)

2. Margin = Limit – Quasi-Peak



## Radiated Emission from 1GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1378.25	---	26.25	54.00	27.75	500.00	200.0	V	0.00	-17
1569.50	37.94	---	74.00	36.06	500.00	200.0	V	0.00	-17
1896.75	---	27.43	54.00	26.57	500.00	200.0	V	17.00	-15
2060.38	39.71	---	74.00	34.29	500.00	200.0	H	206.00	-15
2498.13	---	28.28	54.00	25.72	500.00	200.0	V	278.00	-14
2921.00	38.97	---	74.00	35.03	500.00	100.0	V	357.00	-13
3962.25	---	30.25	54.00	23.75	500.00	200.0	V	6.00	-11
4091.88	41.93	---	74.00	32.07	500.00	200.0	V	138.00	-11
6612.13	45.21	---	74.00	28.79	500.00	100.0	V	240.00	-4
6675.88	---	33.94	54.00	20.06	500.00	100.0	H	187.00	-4
10562.50	52.02	---	74.00	21.98	500.00	200.0	H	104.00	0
10955.63	---	40.72	54.00	13.28	500.00	100.0	H	159.00	0

## 3.2 Conducted Emission

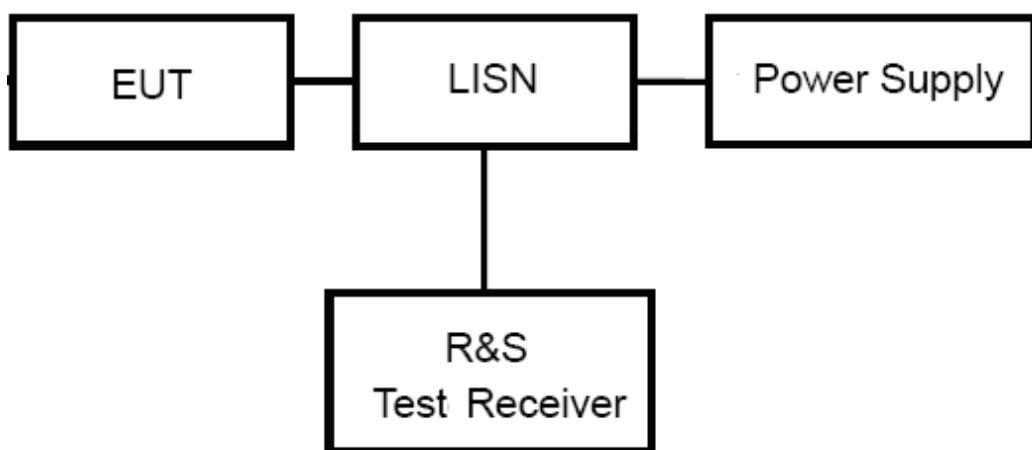
### Ambient condition

Temperature	Relative humidity	Pressure
15°C~35°C	30%~60%	101.5kPa

### Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

### Test Setup



Note: Power Supply is AC Power source and it is used to change the voltage 120V/60Hz.

### Limits

Frequency (MHz)	Conducted Limits(dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 <sup>*</sup>	56 to 46 <sup>*</sup>
0.5 - 5	56	46
5 - 30	60	50

<sup>\*</sup>: Decreases with the logarithm of the frequency.

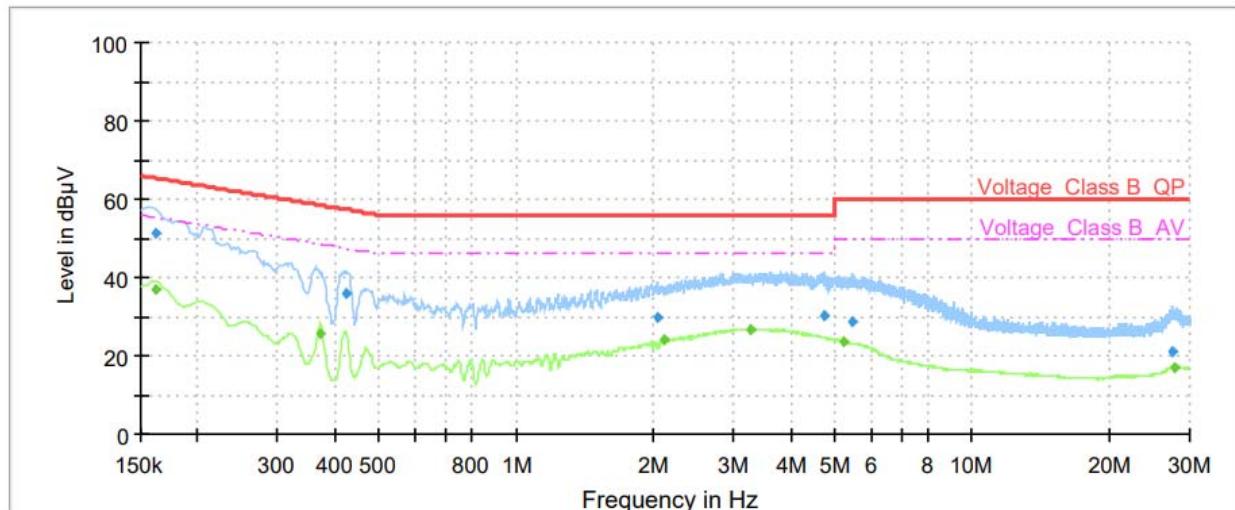
### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U = 2.57$  dB.

## Test Results

Following plots, Blue trace uses the peak detection; Green trace uses the average detection.

**Mode 1 is the worst case**

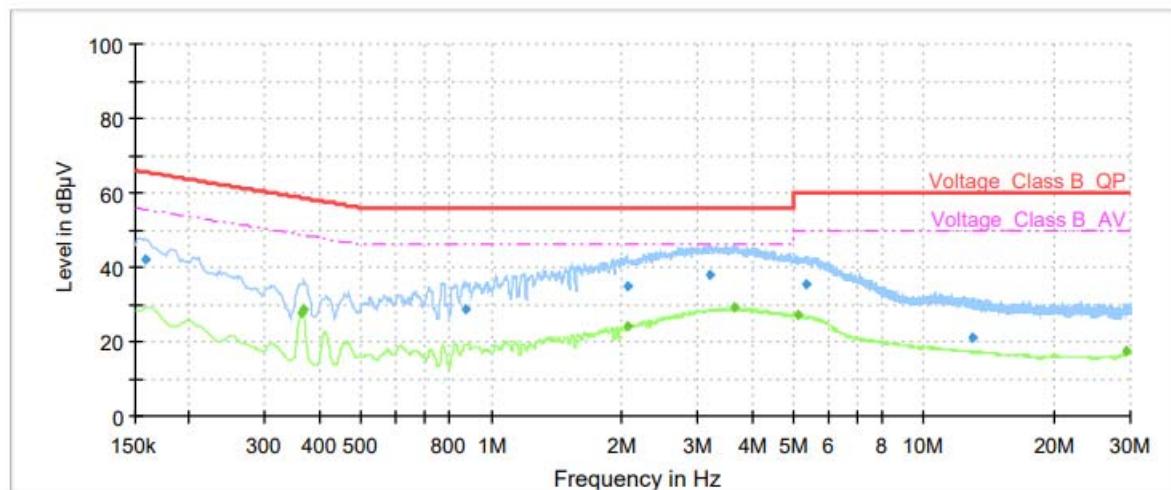


Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.16	---	36.85	55.40	18.55	1000.00	9.000	L1	ON	21
0.16	51.47	---	65.40	13.93	1000.00	9.000	L1	ON	21
0.37	---	25.82	48.44	22.62	1000.00	9.000	L1	ON	21
0.42	35.89	---	57.36	21.47	1000.00	9.000	L1	ON	20
2.04	29.52	---	56.00	26.48	1000.00	9.000	L1	ON	20
2.12	---	23.89	46.00	22.11	1000.00	9.000	L1	ON	20
3.27	---	26.60	46.00	19.40	1000.00	9.000	L1	ON	19
4.72	30.42	---	56.00	25.58	1000.00	9.000	L1	ON	19
5.20	---	23.42	50.00	26.58	1000.00	9.000	L1	ON	19
5.46	28.71	---	60.00	31.29	1000.00	9.000	L1	ON	19
27.50	20.85	---	60.00	39.15	1000.00	9.000	L1	ON	20
27.91	---	16.93	50.00	33.07	1000.00	9.000	L1	ON	20

**Remark: Correct factor=cable loss + LISN factor**

L line

Conducted Emission from 150 KHz to 30 MHz



Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.16	42.20	---	65.52	23.32	1000.00	9.000	N	ON	21
0.36	---	27.72	48.69	20.97	1000.00	9.000	N	ON	21
0.37	---	28.77	48.59	19.82	1000.00	9.000	N	ON	21
0.87	28.55	---	56.00	27.45	1000.00	9.000	N	ON	20
2.05	34.90	---	56.00	21.10	1000.00	9.000	N	ON	20
2.06	---	24.30	46.00	21.70	1000.00	9.000	N	ON	20
3.18	38.13	---	56.00	17.87	1000.00	9.000	N	ON	19
3.64	---	29.10	46.00	16.90	1000.00	9.000	N	ON	19
5.13	---	26.99	50.00	23.01	1000.00	9.000	N	ON	19
5.34	35.28	---	60.00	24.72	1000.00	9.000	N	ON	19
12.98	21.05	---	60.00	38.95	1000.00	9.000	N	ON	20
29.24	---	17.37	50.00	32.63	1000.00	9.000	N	ON	20

Remark: Correct factor=cable loss + LISN factor

N line

Conducted Emission from 150 KHz to 30 MHz



## 4 Main Test Instruments

Name of Equipment	Manufacturer	Type/Model	Serial Number	Calibration Date	Expiration Time
Radiated Emission					
EMI Test Receiver	R&S	ESCI7	100936	2021-12-12	2022-12-11
Signal Analyzer	R&S	FSV30	103591	2021-12-12	2022-12-11
TRILOG Broadband Antenna	SCHWARZBECK	9163	1023	2021-06-07	2024-06-06
Horn Antenna	Schwarzbeck	BBHA 9120D	430	2019-12-16	2022-12-15
Software	R&S	EMC32	9.26.01	/	/
Conducted Emission					
Artificial main network	R&S	ENV216	101171	2020-12-13	2022-12-12
EMI Test Receiver	R&S	ESR	101667	2021-06-04	2022-06-03
Software	R&S	EMC32	10.35.10	/	/

\*\*\*\*\*END OF REPORT\*\*\*\*\*



## ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.



## ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.