EMC TEST REPORT

Applicant	MobiWire SAS
FCC ID	QPN-NEKA
Product	3G Smart Phone
Model	Mobiwire Neka, Altice S13
Report No.	R2007A0455-E1
Issue Date	September 16, 2020

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC Code CFR47 Part15B (2019)/ 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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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: July 10, 2020 ~ August 27, 2020			
Date of Sample Receiving: July 9, 2020			
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.			

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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 electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

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

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City:	Shanghai
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2 General Description of Equipment under Test

2.1 Applicant and Manufacturer Information

Applicant	MobiWire SAS
Applicant address	79 avenue Francois Arago, 92000 NANTERRE France.
Manufacturer	MobiWire SAS
Manufacturer address	79 avenue Francois Arago, 92000 NANTERRE France.

2.2 General information

EUT Description			
Device Type:	Portable Device		
Model:	Mobiwire Neka, Altice S13		
IMEI:	IMEI 1:353443110002826 IMEI 2:353443110002834		
HW Version:	V00		
SW Version:	Mobiwire_Neka_V01_200701		
Antenna Type:	Internal 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
	Bluetooth:	2400 ~ 2483.5	2400 ~ 2483.5
	WIFI 2.4G:	2400 ~ 2483.5	2400 ~ 2483.5
EUT Accessory			
Adapter	Manufacturer: Dongguan Aohai Technology Co., Ltd Model: A31A-050100U-US1		
Battery	Manufacturer: ZHONGSHAN TIANMAO BATTERY CO.,LTD Model: 178183116		
Earphone	Manufacturer: HUIZHOU JUWEI ELECTRONICS CO.,LTD Model: JWEP0957-M01R		
USB Cable	Manufacturer: SHENZHEN FKY-QY HARDWARE ELECTRONIC CO.,LTD Model: AM MICRO5P		
Auxiliary test equipment			
PC	PC Manufacturer: Microsoft Corporation Model: L2017007		
Note: 1.The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

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Note: 1.The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.

Item	Mobiwire Neka	Altice S13
Protocol Stack	The same	The same
MMS/STK	The same	The same
JAVA	The same	The same
Web User Interface page	The same	The same
HARDWARE	The same	The same
MECHANICAL	The same	The same
ACCESSORY	The same	The same
Note: Customer declaration, two models are the same, except for the model. There are more than one model, only Mobiwire Neka will be recorded in this report.		

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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 (2019)
ANSI C63.4 (2014)

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2.4 Test Mode

Test Mode for RE	
Mode 1:	USB Copy(EUT with PC) + USB cable + earphone
Mode 2:	USB Copy(EUT with PC) + USB cable + earphone + camera On
Mode 3:	Adapter +USB cable+ earphone + front camera On +Receiver
Mode 4:	Adapter +USB cable + earphone + rear camera On +Receiver
Mode 5:	Adapter + USB cable+ earphone + Mp3
Mode 6:	Adapter + USB cable+ earphone
Mode 7:	Front Camera On +earphone
Mode 8:	Rear camera On +earphone
Mode 9:	Earphone+MP3

During the test, the preliminary test was performed in all modes with all adapters, USB and batteries, mode 2 selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Test Mode for CE	
Mode 1:	USB Copy(EUT with PC) + USB cable + earphone + camera On + MP3
Mode 2:	Adapter + USB cable+ earphone + camera On +Receiver
Mode 3:	Adapter + USB cable+ earphone + Mp3
Mode 4:	Adapter + USB cable+ earphone

During the test, the preliminary test was performed in all modes with all adapters, USB and batteries, mode 2 selected as the worst condition. The test data of the worst-case condition was recorded in this report.

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3 Test Case Results

3.1 Radiated Emission

Ambient condition

Temperature	Relative humidity	Pressure
24°C~26°C	45%~50%	102.5kPa

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.

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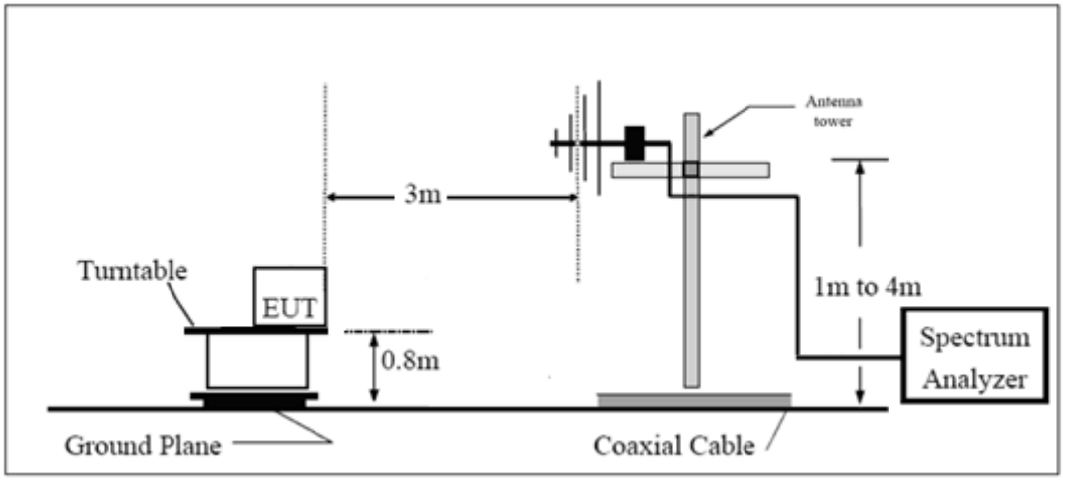
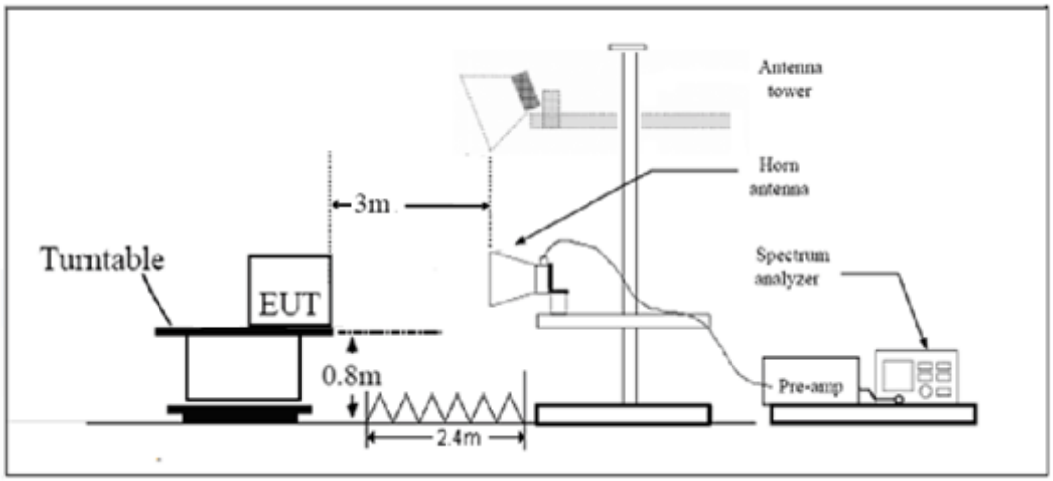
Test Setup

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.

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Limits

Class B

Frequency (MHz)	Field Strength (dBμV/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
1000-5th 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
18GHz~26.5GHz	5.90 dB
26.5GHz~40GHz	5.92 dB

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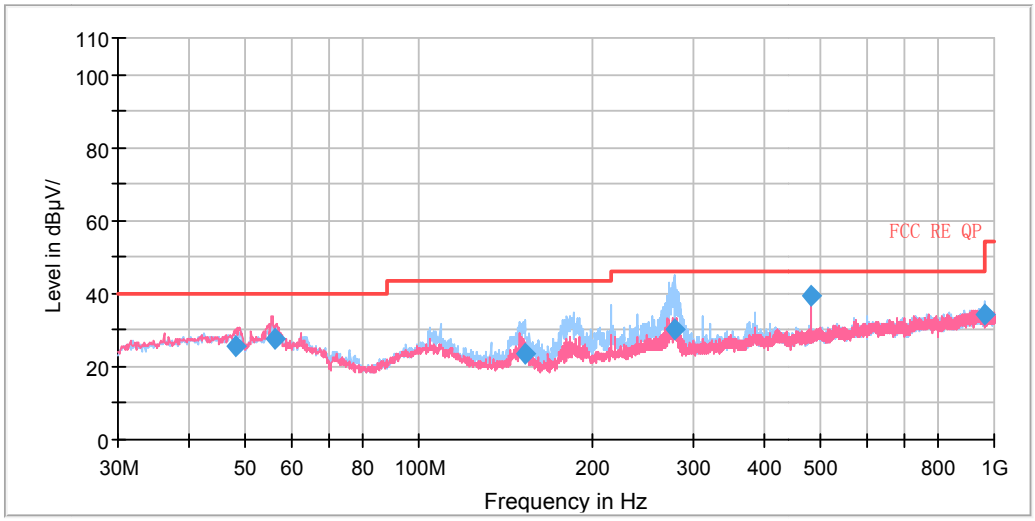
Test Results

Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier, the Emissions in the frequency band 18GHz- 26.5GHz is more than 20dB below the limit are not reported.

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.



Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
47.988750	25.82	100.0	V	148.0	-0.7	14.18	40.00
56.265000	27.55	100.0	V	66.0	-2.2	12.45	40.00
153.388750	23.69	175.0	H	246.0	-9.6	19.81	43.50
278.123750	30.13	100.0	H	181.0	-4.8	15.87	46.00
480.000000	39.63	210.0	H	249.0	-0.8	6.37	46.00
959.987500	34.12	122.0	H	234.0	4.7	11.88	46.00

Remark: 1. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
2. Margin = Limit – Quasi-Peak

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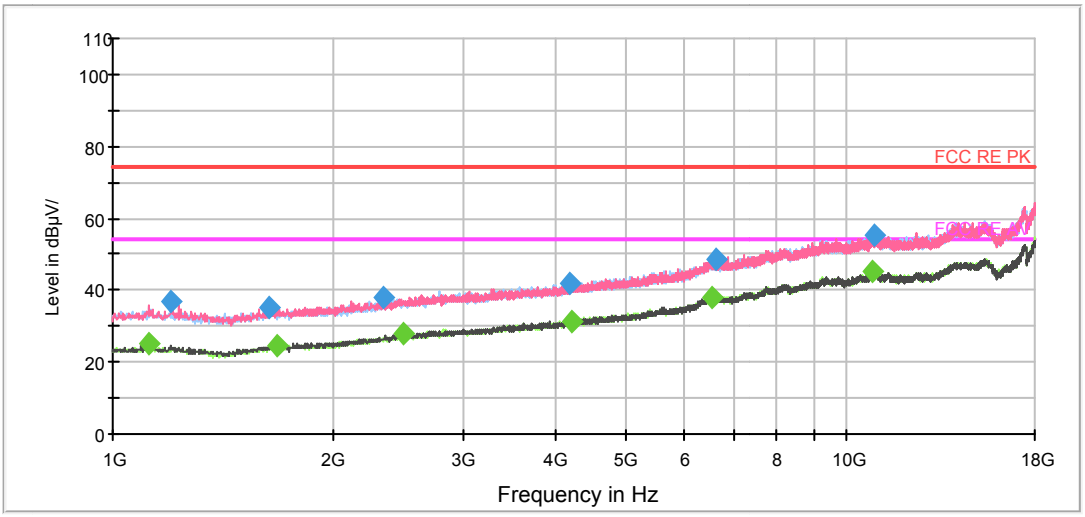

Radiated Emission from 1GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1199.750000	36.7	100.0	H	358.0	-11.2	37.3	74.0
1629.000000	35.0	200.0	V	196.0	-9.9	39.0	74.0
2334.500000	38.0	200.0	H	42.0	-7.0	36.0	74.0
4191.750000	41.7	100.0	V	313.0	-2.2	32.3	74.0
6633.375000	48.3	200.0	V	100.0	5.0	25.7	74.0
10862.125000	55.5	100.0	H	332.0	13.5	18.5	74.0

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1121.125000	25.3	100.0	V	0.0	-11.4	28.7	54.0
1675.750000	24.5	200.0	H	2.0	-9.7	29.5	54.0
2481.125000	28.1	200.0	V	344.0	-6.5	25.9	54.0
4208.750000	31.4	100.0	V	149.0	-2.1	22.6	54.0
6535.625000	38.2	100.0	H	0.0	4.9	15.8	54.0
10845.125000	45.0	100.0	H	190.0	13.5	9.0	54.0

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3.2 Conducted Emission

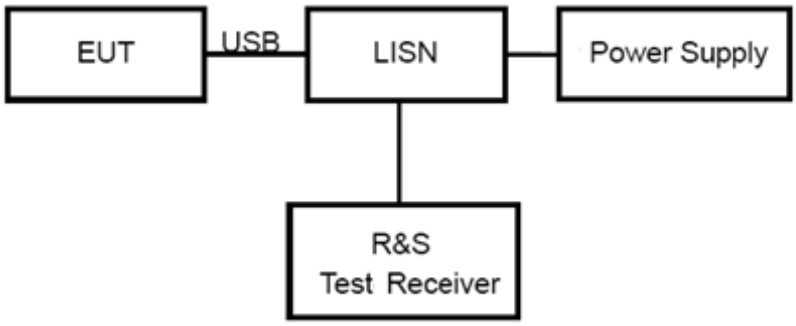
Ambient condition

Temperature	Relative humidity	Pressure
24°C ~26°C	50%~55%	102.5kPa

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(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50
*: 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.

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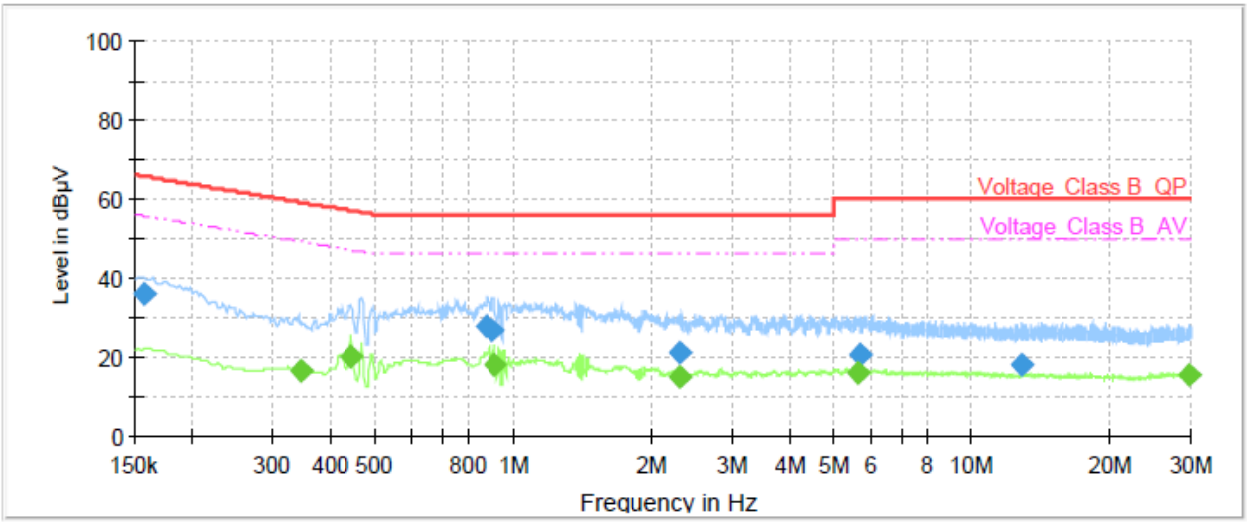
Test Results

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



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.16	35.78	---	65.63	29.85	1000.0	9.000	L1	ON	19
0.34	---	16.61	49.12	32.51	1000.0	9.000	L1	ON	19
0.44	---	19.91	47.02	27.11	1000.0	9.000	L1	ON	19
0.87	27.48	---	56.00	28.52	1000.0	9.000	L1	ON	19
0.90	26.42	---	56.00	29.58	1000.0	9.000	L1	ON	19
0.91	---	17.84	46.00	28.16	1000.0	9.000	L1	ON	19
2.30	20.94	---	56.00	35.06	1000.0	9.000	L1	ON	19
2.31	---	14.66	46.00	31.34	1000.0	9.000	L1	ON	19
5.64	---	15.98	50.00	34.02	1000.0	9.000	L1	ON	19
5.71	20.66	---	60.00	39.34	1000.0	9.000	L1	ON	19
12.75	17.87	---	60.00	42.13	1000.0	9.000	L1	ON	19
29.68	---	15.64	50.00	34.36	1000.0	9.000	L1	ON	20

Remark: Correct factor=cable loss + LISN factor

L line

Conducted Emission from 150 KHz to 30 MHz

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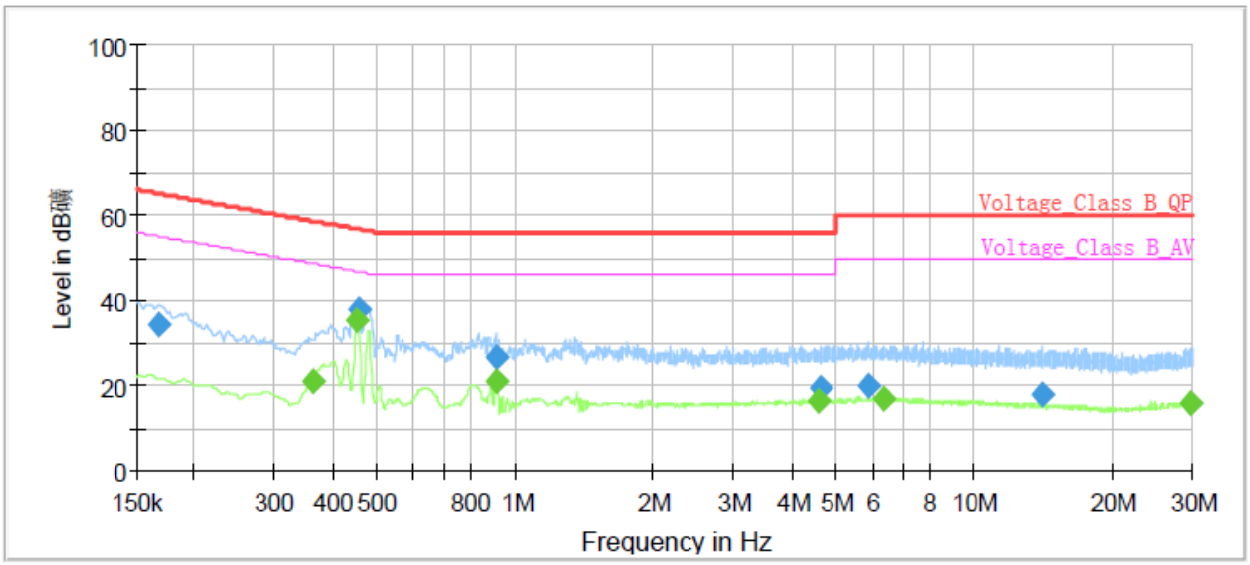

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.17	34.49	---	65.06	30.57	1000.0	9.000	N	ON	19
0.36	---	21.01	48.69	27.68	1000.0	9.000	N	ON	19
0.45	---	35.50	46.81	11.30	1000.0	9.000	N	ON	19
0.46	37.78	---	56.77	18.99	1000.0	9.000	N	ON	19
0.91	---	20.83	46.00	25.17	1000.0	9.000	N	ON	19
0.91	26.71	---	56.00	29.29	1000.0	9.000	N	ON	19
4.56	---	16.23	46.00	29.77	1000.0	9.000	N	ON	19
4.65	19.74	---	56.00	36.26	1000.0	9.000	N	ON	19
5.92	20.25	---	60.00	39.75	1000.0	9.000	N	ON	19
6.34	---	16.69	50.00	33.31	1000.0	9.000	N	ON	19
14.08	18.01	---	60.00	41.99	1000.0	9.000	N	ON	19
29.77	---	16.03	50.00	33.97	1000.0	9.000	N	ON	20

Remark: Correct factor=cable loss + LISN factor

N line

Conducted Emission from 150 KHz to 30 MHz

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4 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Time
Spectrum Analyzer	R&S	FSV40	15195-01-00	2020-05-17	2021-05-16
EMI Test Receiver	R&S	ESCI	100948	2020-05-17	2021-05-16
Trilog Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
EMI Test Receiver	R&S	ESR	101667	2020-05-17	2021-05-16
LISN	R&S	ENV216	101171	2018-12-15	2021-12-14
Bore Sight Antenna mast	ETS	2171B	00058752	/	/
Test software	EMC32	R&S	9.26.0	/	/

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

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