



EMC TEST REPORT

Applicant Mobiwire SAS

FCC ID QPN-ONEIDA

Product 4G Smart Feature Phone

Brand MobiWire

Model MobiWire Oneida, MobiWire Oneida
Lite, MBW Vodacom Vibe 4G

Report No. R1912A0712-E1

Issue Date December 31, 2019

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC Code CFR47 Part15B (2018)/ 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

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
Test Date: December 10, 2019~ December 30, 2019			
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.			

MobiWire Oneida, MobiWire Oneida Lite, MBW Vodacom Vibe 4G (Report No.: R1912A0712-E1) is a variant model of MobiWire Oneida (Report No.: I18D00205-EMC01). Test values all retested for variant in this report. The detailed product change description please refers to the *GM2809D Oneida Product Change Description 20191205*.



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 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
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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 Oneida, MobiWire Oneida Lite, MBW Vodacom Vibe 4G		
IMEI:	IMEI 1:352718110002129 IMEI 2:352718110002137		
HW Version:	V04C		
SW Version:	V01		
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
	LTE Band 7	2500 ~ 2570	2620 ~ 2690
	Bluetooth:	2402 ~ 2480	2402 ~ 2480
	WIFI 2.4G:	2412 ~ 2462	2412 ~ 2462
Modulation:	GSM: GMSK GPRS: GMSK EGPRS: GMSK/8PSK WCDMA RMC: QPSK HSDPA: QPSK HSUPA: QPSK DC-HSDPA: 64QAM HSPA+: 16QAM LTE: QPSK / 16QAM Bluetooth: GFSK, $\pi/4$ -DQPSK, 8-DPSK		



	Bluetooth v4.2 LE: GFSK WLAN 802.11b: DSSS WLAN 802.11g/n: OFDM
EUT Accessory	
Adapter	Manufacturer: DongGuan Aohai Power Technology Co.,Ltd Model: A31A-050055U-US1
Battery	Manufacturer: NINGBO VEKEN BATTERY CO.,LTD Model: 178150977
Earphone 1	Manufacturer: jiu jiang JUWEI ELECTRONICS CO.,LTD Model: JWEP1062-M01R 1.0m, Shielded
Earphone 2	Manufacturer: jiu jiang JUWEI ELECTRONICS CO.,LTD Model: JWEP0944-M01R 1.0m, Shielded
Auxiliary test equipment	
PC	PC Manufacturer: Microsoft Corporation Model: L20170076
Note: The information of the EUT is declared by the manufacturer.	

Item	Configure 1	Configure 2	Configure 3	Configure 4
Software	the same	the same	the same	the same
Hardware	the same	the same	the same	the same
Frequency band	the same	the same	the same	the same
camera	with camera	with camera	without camera	without camera
SIM card slot	2*SIM card	2*SIM card	1*SIM card	1*SIM card
LCD	HLT LCD	SL LCD	HLT LCD	SL LCD
Other	The same	The same	The same	The same
Note: Customer declaration, Four configures is the same, except for camera , LCD and SIM card slot. There are more than one Configure, each one should be applied throughout the compliance test respectively, however, only the worst case (Configure 2) will be recorded in this report.				



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)



2.4 Test Mode

Test Mode	
Mode 1	USB Copy(EUT with PC) + USB cable + earphone + Camera On + MP3 +Idle

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

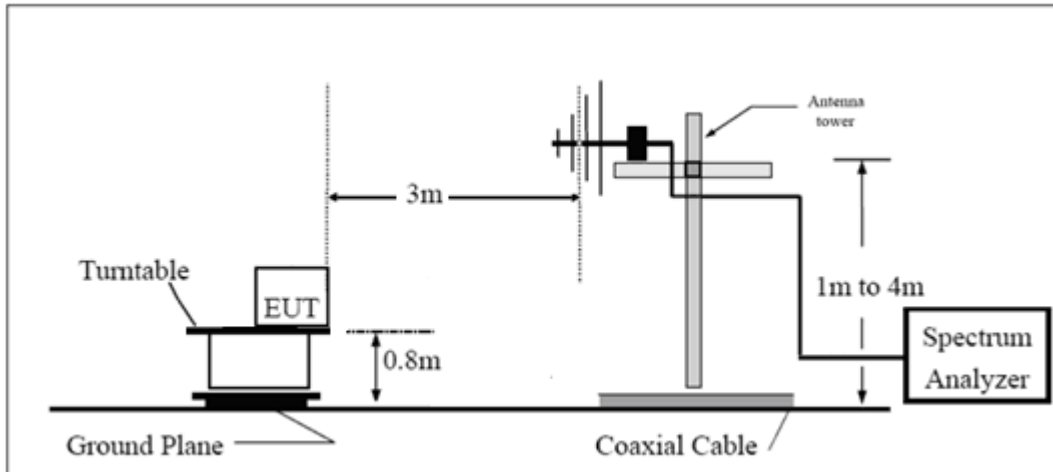
(b) AVERAGE Detector: RBW=1MHz / VBW=3MHz / Sweep=AUTO

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.

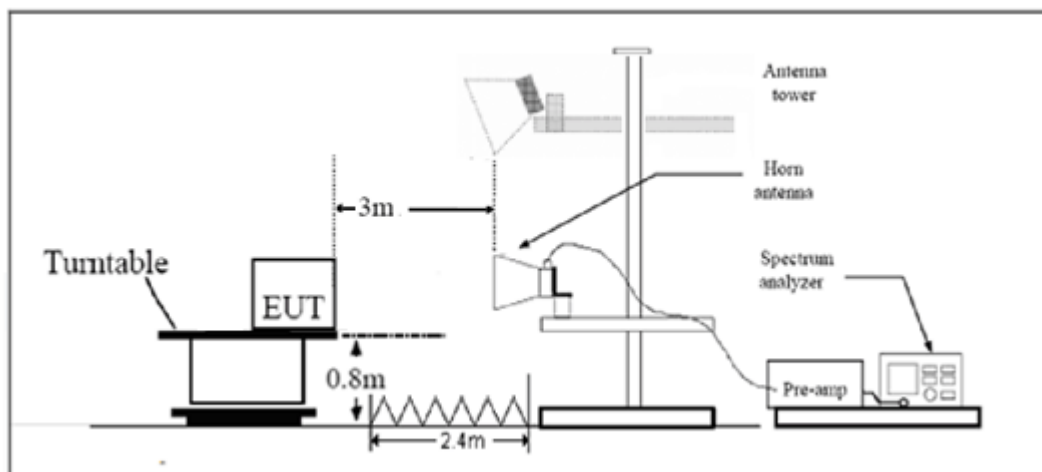
During the test, EUT is connected to a laptop via a USB cable in the case of Transfer Data mode. The EUT is used as the peripheral equipment of the PC. The data is transferred from EUT to PC; PC is connected to server via a long LAN cable.

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

Frequency (MHz)	Field Strength (dB μ 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 th harmonic of the highest frequency or 40GHz, which is lower	54 74	Average Peak

Measurement Uncertainty

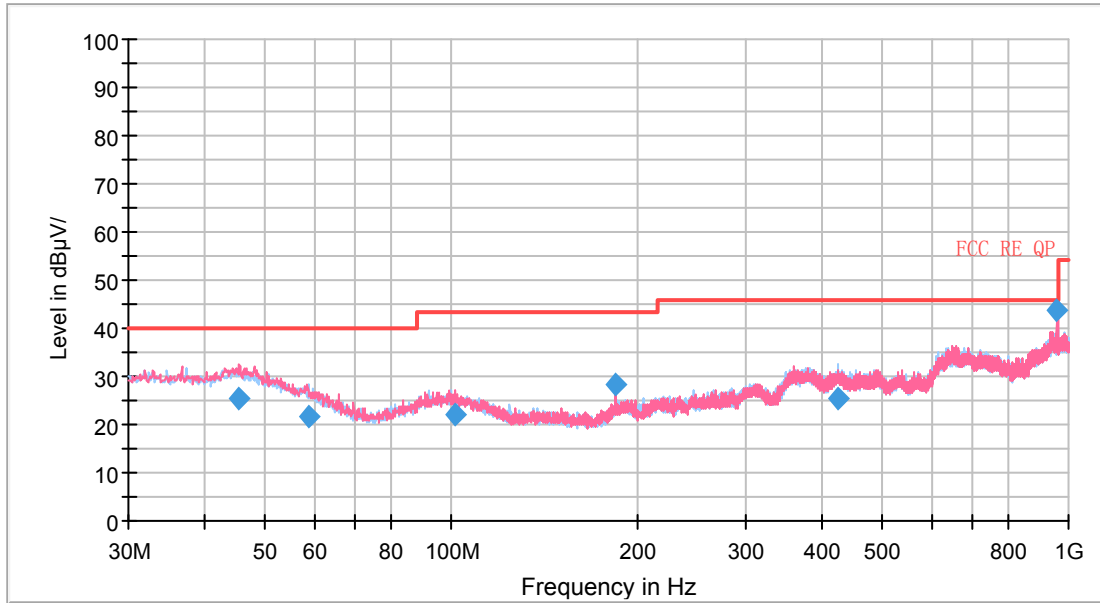
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
30MHz~200MHz	4.02 dB
200MHz~1000MHz	3.28 dB
1GHz~18GHz	3.70 dB
18GHz~26.5GHz	5.78 dB
26.5GHz~40GHz	5.82 dB

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.

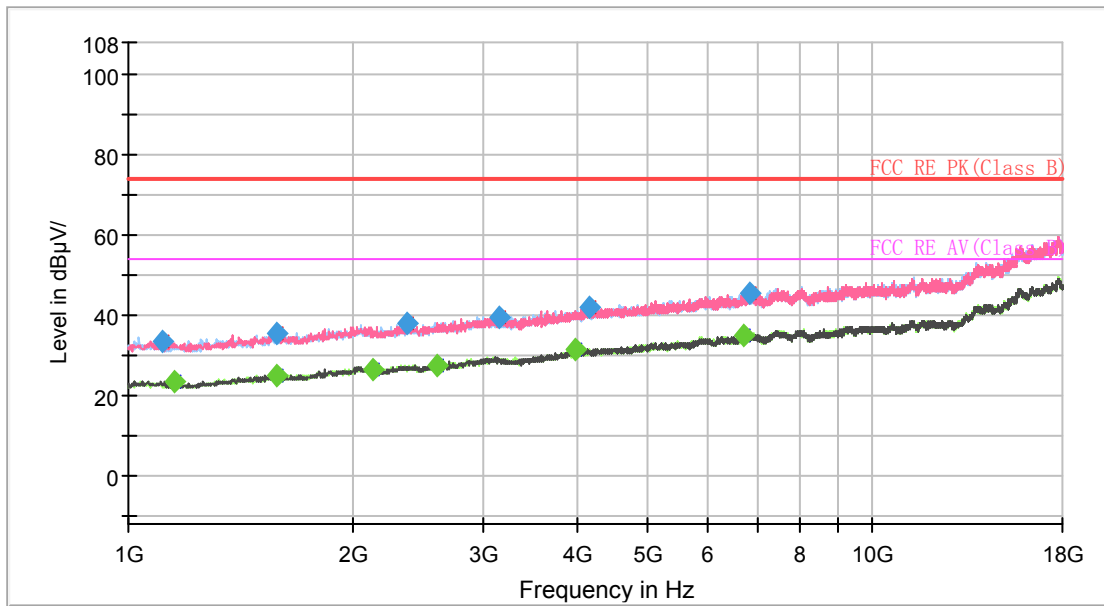


Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
45.405253	25.34	100.0	V	206.0	3.2	14.66	40.00
58.669410	21.48	225.0	H	200.0	-1.2	18.52	40.00
101.684603	22.17	109.0	V	286.0	-3.4	21.33	43.50
184.249425	28.13	175.0	V	216.0	-6.0	15.37	43.50
421.833000	25.37	109.0	H	190.0	0.7	20.63	46.00
959.705500	43.83	100.0	V	175.0	8.7	2.17	46.00

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)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Height (cm)	Polarization	Azimuth (deg)	Correct Factor
1108.375000	33.29	---	74.00	40.71	200.0	200.0	V	210.0	-10.8
1153.000000	---	23.32	54.00	30.68	200.0	100.0	H	183.0	-10.1
1578.000000	35.29	---	74.00	38.71	200.0	200.0	H	199.0	-8.2
1578.000000	---	25.10	54.00	28.90	200.0	100.0	H	297.0	-8.2
2128.375000	---	26.30	54.00	27.70	200.0	200.0	H	74.0	-5.6
2372.750000	37.92	---	74.00	36.08	200.0	100.0	V	128.0	-5.1
2604.375000	---	27.75	54.00	26.25	200.0	200.0	H	37.0	-4.1
3142.000000	39.70	---	74.00	34.30	200.0	100.0	V	124.0	-1.8
3989.875000	---	31.63	54.00	22.37	200.0	200.0	H	243.0	0.7
4164.125000	41.96	---	74.00	32.04	200.0	200.0	H	71.0	1.0
6714.125000	---	35.17	54.00	18.83	200.0	200.0	V	14.0	6.0
6833.125000	45.44	---	74.00	28.56	200.0	200.0	V	314.0	6.0

3.2 Conducted Emission

Ambient condition

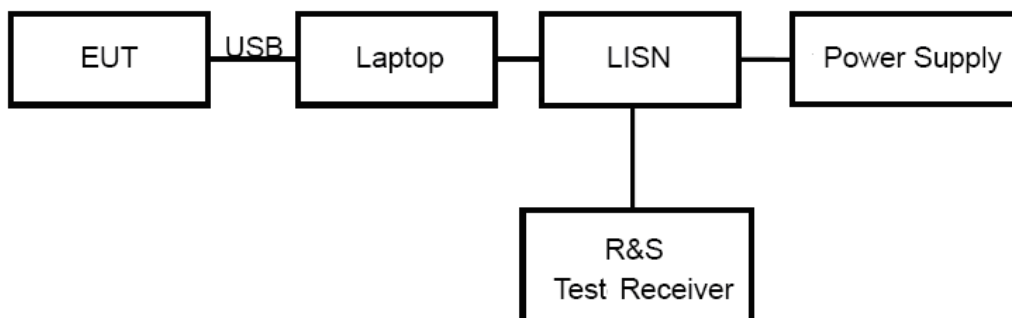
Temperature	Relative humidity	Pressure
24°C ~26°C	50%~55%	102.5kPa

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.

During the test, EUT is connected to a laptop via a USB cable in the case of Transfer Data mode. The EUT is used as the peripheral equipment of the PC. The data is transferred from EUT to PC; PC is connected to server via a long LAN cable.

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

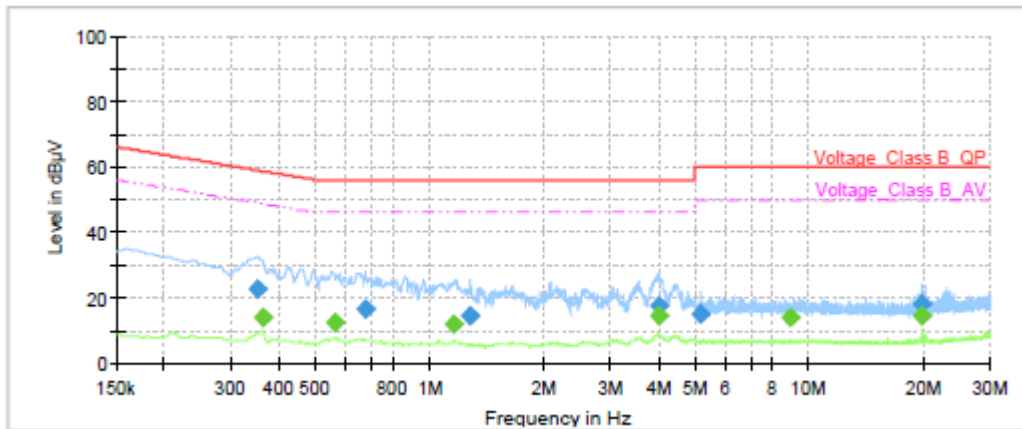
*: Decreases with the logarithm of the frequency.

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.

Test Results

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

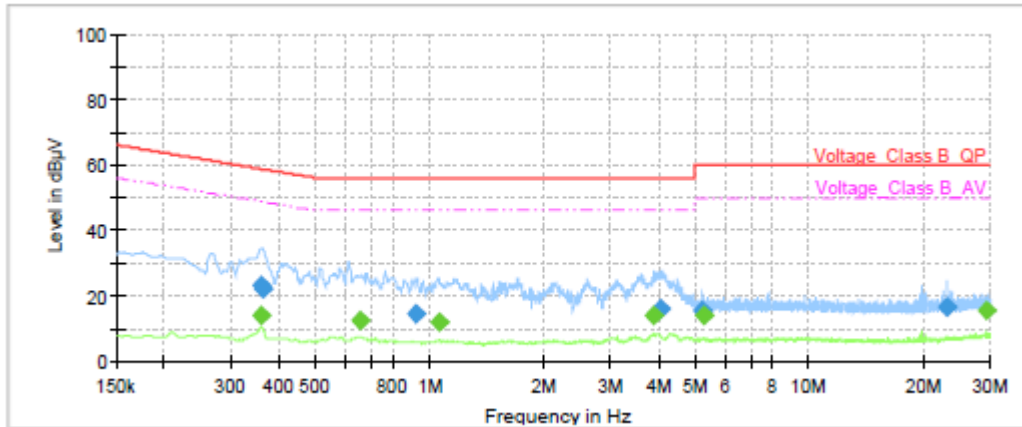


Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.35	22.64	---	58.90	36.26	1000.0	9.000	L1	ON	19
0.36	---	13.73	48.69	34.96	1000.0	9.000	L1	ON	19
0.56	---	12.33	46.00	33.67	1000.0	9.000	L1	ON	19
0.68	16.55	---	56.00	39.45	1000.0	9.000	L1	ON	19
1.16	---	12.04	46.00	33.96	1000.0	9.000	L1	ON	19
1.28	14.27	---	56.00	41.73	1000.0	9.000	L1	ON	19
4.01	17.65	---	56.00	38.35	1000.0	9.000	L1	ON	19
4.01	---	14.16	46.00	31.84	1000.0	9.000	L1	ON	19
5.16	14.96	---	60.00	45.04	1000.0	9.000	L1	ON	19
8.89	---	14.06	50.00	35.94	1000.0	9.000	L1	ON	19
19.71	---	14.49	50.00	35.51	1000.0	9.000	L1	ON	20
19.71	17.72	---	60.00	42.28	1000.0	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 (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.36	---	13.82	48.75	34.93	1000.0	9.000	N	ON	19
0.36	23.04	---	58.75	35.71	1000.0	9.000	N	ON	19
0.36	22.06	---	58.64	36.58	1000.0	9.000	N	ON	19
0.65	---	12.38	46.00	33.62	1000.0	9.000	N	ON	19
0.92	14.40	---	56.00	41.60	1000.0	9.000	N	ON	19
1.06	---	12.02	46.00	33.98	1000.0	9.000	N	ON	19
3.89	---	13.86	46.00	32.14	1000.0	9.000	N	ON	19
4.07	16.07	---	56.00	39.93	1000.0	9.000	N	ON	19
5.25	15.26	---	60.00	44.74	1000.0	9.000	N	ON	19
5.27	---	13.83	50.00	36.17	1000.0	9.000	N	ON	19
23.13	16.47	---	60.00	43.53	1000.0	9.000	N	ON	20
29.24	---	15.56	50.00	34.44	1000.0	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	Manufacturer	Type	Serial Number	Calibration Date	Expiration Time
Spectrum Analyzer	R&S	FSV40	15195-01-00	2019-05-19	2020-05-18
EMI Test Receiver	R&S	ESCI	100948	2019-05-19	2020-05-18
Trilog Antenna	SCHWARZBECK	VULB 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	100126	2018-07-07	2020-07-06
Standard Gain Horn	ETS-Lindgren	3160-09	00102643	2018-06-20	2020-06-19
EMI Test Receiver	R&S	ESR	101667	2019-05-19	2020-05-18
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 *****