# **FCC Test Report**

APPLICANT : BLU Products, Inc.

**EQUIPMENT**: Mobile Phone

BRAND NAME : BLU

MODEL NAME : VIVO XL4

FCC ID : YHLBLUVIVOXL4

STANDARD : FCC CFR Title 47 Part 15 Subpart B

**CLASSIFICATION**: Certification

The product was received on Aug. 30, 2018 and testing was completed on Sep. 14, 2018. We, Sporton International (Shenzhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Shenzhen) Inc., the test report shall not be reproduced except in full.



## Sporton International (Shenzhen) Inc.

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen City, Guangdong Province 518055, China

Sporton International (Shenzhen) Inc.

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## **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC883001	Rev. 01	Initial issue of report	Sep. 28, 2018

Sporton International (Shenzhen) Inc.
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## **SUMMARY OF TEST RESULT**

Report Section	FCC Rule	Description	Limit	Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	9.59 dB at
					3.210 MHz
			< 15.109 limits	PASS	Under limit
2.0	15.109	15.109 Radiated Emission			3.10 dB at
3.2					259.890 MHz
					Quasi-Peak

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Report No.: FC883001

## 1. General Description

## 1.1. Applicant

**BLU Products, Inc.** 

10814 NW 33rd St # 100 Doral, FL 33172, USA

### 1.2. Manufacturer

**BLU Products, Inc.** 

10814 NW 33rd St # 100 Doral, FL 33172, USA

## 1.3. Product Feature of Equipment Under Test

Product Feature					
Equipment	Mobile Phone				
Brand Name	BLU				
Model Name	VIVO XL4				
FCC ID	YHLBLUVIVOXL4				
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 Bluetooth BR/EDR/LE				
IMEI Code	Conduction: 354147142319260/354147042369265 Radiation: 354147042319260/354147042369265				
HW Version	Vivo XL4_Mainboard_P4				
SW Version	Vivo XL4_2403				
EUT Stage	Identical Prototype				

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**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

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## 1.4. Product Specification of Equipment Under Test

Standards-related Product Specification				
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz Bluetooth: 2402 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz			
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV: 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 2: 1930.7 MHz ~ 1989.3 MHz LTE Band 4: 2110.7 MHz ~ 2154.3 MHz LTE Band 5: 869.7 MHz ~ 893.3 MHz LTE Band 7: 2622.5 MHz ~ 2687.5 MHz LTE Band 12: 729.7 MHz ~ 745.3 MHz LTE Band 13: 748.5 MHz ~ 753.5 MHz LTE Band 66: 2110.7 MHz ~ 2199.3 MHz Band 66: 2110.7 MHz ~ 2199.3 MHz Bluetooth: 2402 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GNSS: 1559 MHz ~ 1610 MHz			
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GNSS: PIFA Antenna			

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GSM: GMSK **GPRS: GMSK** EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: BPSK (Uplink) HSDPA/DC-HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM DC-HSDPA: 64QAM Type of Modulation LTE: QPSK / 16QAM / 64QAM 802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE: GFSK Bluetooth (1Mbps): GFSK Bluetooth (2Mbps) :  $\pi$  /4-DQPSK Bluetooth (3Mbps): 8-DPSK

GNSS: BPSK

**GNSS = BDS + GLONASS + GPS** 

### 1.5. Modification of EUT

No modifications are made to the EUT during all test items.

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### 1.6. Test Location

Sporton International (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0).

Test Site Location	TEL: +86-755-8637-9589 FAX: +86-755-8637-9595				
Took Oite No	Sporton Site No.	FCC designation No.	FCC Test Firm Registration No.		
Test Site No.	CO01-SZ	CN5018	337463		

Test Site	Sporton International (Shenzhen) Inc.					
	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan					
Test Site Location	District, Shenzhen City, Guangdong Province 518055, China					
	TEL: +86-755- 3320-2398					
Toot Site No	Sporton Site No.	FCC designation No.	FCC Test Firm Registration No.			
Test Site No.	03CH04-SZ	CN5019	577730			

## 1.7. Applicable Standards

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

- FCC CFR Title 47 Part 15 Subpart B
- ANSI C63.4-2014

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

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## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
	Mode 1: GSM850 Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + USB Cable (Charging from Adapter)
AC Conducted	Mode 2: GSM1900 Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + USB Cable (Charging from Adapter)
Emission	Mode 3: WCDMA Band V Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Colur bar) + USB Cable (Charging from Adapter)
	Mode 4: LTE Band 7 Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + GNSS On + USB Cable (Data Link with Notebook )
	Mode 1: GSM850 Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + USB Cable (Charging from Adapter)
Radiated	Mode 2: GSM1900 Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + USB Cable (Charging from Adapter)
Emissions	Mode 3: WCDMA Band V Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Colur bar) + USB Cable (Charging from Adapter)
	Mode 4: LTE Band 7 Idle + Earphone + Bluetooth Idle + WLAN (2.4G) Idle + GNSS On + USB Cable (Data Link with Notebook )

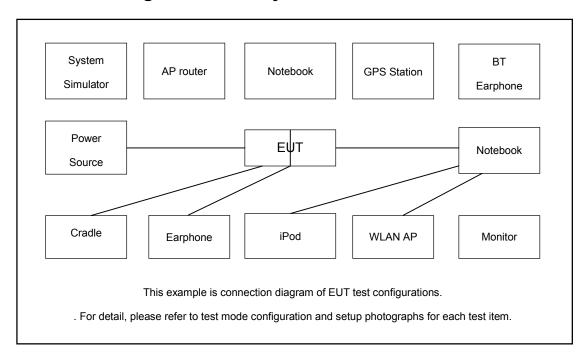
#### Remark:

- 1. The worst case of AC is mode 1; only the test data of this mode is reported.
- 2. The worst case of RE is mode 4; only the test data of this mode is reported.
- Data Link with Notebook means data application transferred mode between EUT and Notebook.

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## 2.2. Connection Diagram of Test System



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## 2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	Labsat	RACELOGIC	18645	N/A	N/A	Unshielded,1.8m
3.	LABSAT GPS Simulator	RACELOGIC	RLLS03-2P	Fcc DoC	N/A	Unshielded,1.8m
4.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
5.	WLAN AP	Netcore	NW616	N/A	N/A	Unshielded,1.8m with Core
6.	Bluetooth Earphone	Samsung	EO-MG900	PYAHS-107W	N/A	N/A
7.	Bluetooth Earphone	Samsung	HS3000	A3LHS3000	N/A	N/A
8.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
9.	Notebook	DELL	VOSTRO 1440	Fcc DoC	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
10.	SD Card	N/A	MicroSD HC	FCC DoC	N/A	N/A
11.	IPod	apple	MC69029/A	FCC DoC	N/A	N/A
12.	IPod	Apple	MC525 ZP/A	N/A	Shielded, 1.0m	N/A

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### 2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

- 1. Data application is transferred between Laptop and EUT via USB cable.
- 2. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.
- 3. Turn on camera to capture images.
- 4. Turn on MPEG4 function.

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### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

#### 3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

#### <Class B Limit>

Frequency of emission	Conducted limit (dBuV)				
(MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			

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

#### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.1.3 Test Procedure

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

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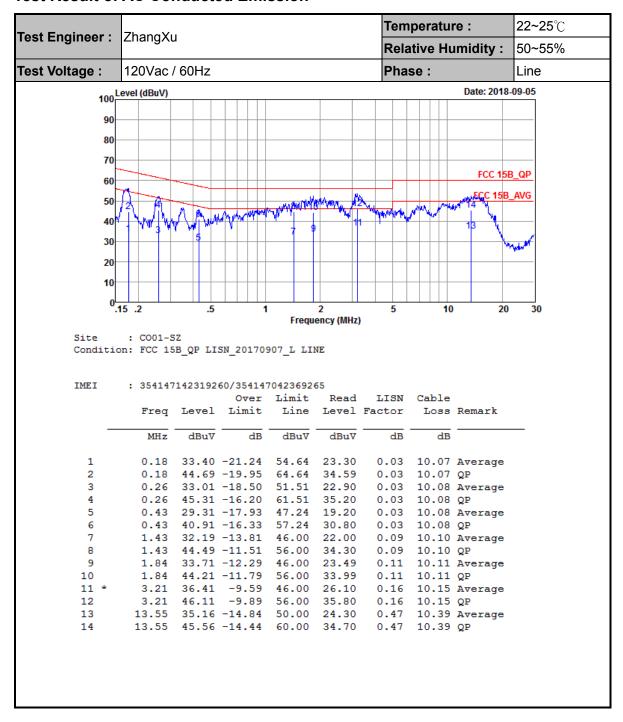
### 3.1.4 Test Setup



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#### 3.1.5 Test Result of AC Conducted Emission



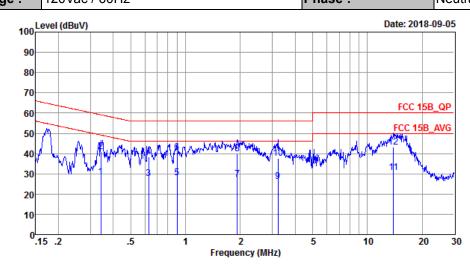
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 Test Engineer :
 ZhangXu
 Temperature :
 22~25°C

 Relative Humidity :
 50~55%

 Test Voltage :
 120Vac / 60Hz
 Phase :
 Neutral



Site : CO01-SZ

Condition: FCC 15B QP LISN\_20170907\_N NEUTRAL

IMEI : 354147142319260/354147042369265

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBu₹	dB	dBu∀	dBu∀	dB	dB	
1	0.34	28.41	-20.72	49.13	18.30	0.03	10.08	Average
2	0.34	41.01	-18.12	59.13	30.90	0.03	10.08	QP
3	0.63	27.70	-18.30	46.00	17.60	0.02	10.08	Average
4	0.63	38.50	-17.50	56.00	28.40	0.02	10.08	QP
5	0.90	28.23	-17.77	46.00	18.10	0.04	10.09	Average
6 *	0.90	40.53	-15.47	56.00	30.40	0.04	10.09	QP
7	1.93	27.36	-18.64	46.00	17.20	0.05	10.11	Average
8	1.93	39.86	-16.14	56.00	29.70	0.05	10.11	QP
9	3.22	26.38	-19.62	46.00	16.19	0.04	10.15	Average
10	3.22	37.58	-18.42	56.00	27.39	0.04	10.15	QP
11	13.91	30.49	-19.51	50.00	19.80	0.30	10.39	Average
12	13.91	43.09	-16.91	60.00	32.40	0.30	10.39	QP

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### 3.2. Test of Radiated Emission Measurement

### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

#### <Class B Limit>

Frequency	Field Strength	Measurement Distance	
(MHz)	(microvolts/meter)	(meters)	
30 – 88	100	3	
88 – 216	150	3	
216 - 960	200	3	
Above 960	500	3	

### 3.2.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

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#### 3.2.3. Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest radiation.
- 4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
- 7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
- 8. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)
- 9. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level

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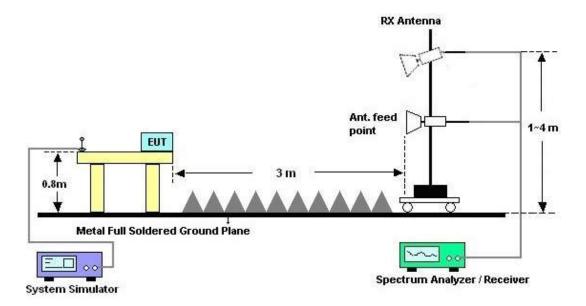
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### 3.2.4. Test Setup of Radiated Emission

#### For radiated emissions from 30MHz to 1GHz



#### For radiated emissions above 1GHz

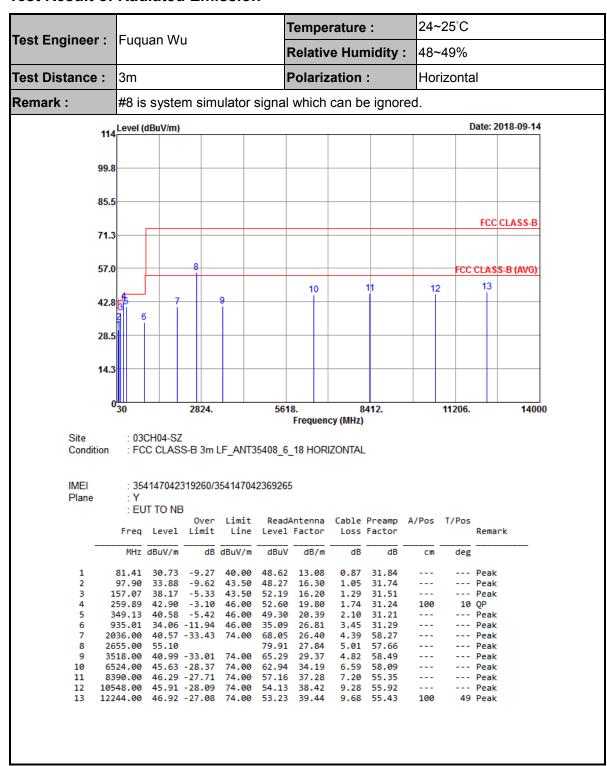


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#### 3.2.5. Test Result of Radiated Emission



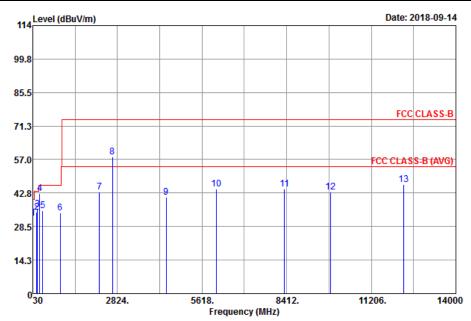
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Test Engineer :	Fuquan Wu	Temperature :	24~25°C	
		Relative Humidity :	48~49%	
Test Distance :	3m	Polarization :	Vertical	
Pomark :	#8 is system simulator signal which can be ignored			

**Remark**: #8 is system simulator signal which can be ignored.



Site : 03CH04-SZ

Condition : FCC CLASS-B 3m LF\_ANT35408\_6\_18 VERTICAL

IMEI : 354147042319260/354147042369265

Plane : Y

· FUT TO NB

	. =0		)								
			Over	Limit	Read	Antenna	Cable	Preamp	A/Pos	T/Pos	
	Freq	Level	Limit	Line	Level	Factor	Loss	Factor			Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	41.64	31.98	-8.02	40.00	45.73	17.78	0.44	31.97			Peak
2	157.07	34.76			48.78		1.29				Peak
3	183.26	36.04	-7.46	43.50	50.73	15.26	1.44	31.39			Peak
4	257.95	42.61	-3.39	46.00	52.56	19.56	1.73	31.24	100	72	Peak
5	352.04	35.39	-10.61	46.00	44.04	20.46	2.10	31.21			Peak
6	935.98	34.24	-11.76	46.00	35.26	26.82	3.45	31.29			Peak
7	2234.00	43.34	-30.66	74.00	68.99	27.86	4.55	58.06			Peak
8	2655.00	58.14			82.95	27.84	5.01	57.66			Peak
9	4428.00	40.99	-33.01	74.00	63.87	30.85	5.12	58.85			Peak
10	6082.00	44.33	-29.67	74.00	61.92	33.13	6.62	57.34			Peak
11	8334.00	44.55	-29.45	74.00	55.45	37.27	7.24	55.41			Peak
12	9850.00	43.14	-30.86	74.00	51.60	38.18	8.94	55.58			Peak
13	12276.00	46.46	-27.54	74.00	52.86	39.46	9.69	55.55	100	95	Peak

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## 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 26, 2017	Sep. 05, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Dec. 26, 2017	Sep. 05, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Nov. 01, 2017	Sep. 05, 2018	Oct. 31, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000089 1	100Vac~250Vac	Jul. 18, 2018	Sep. 05, 2018	Jul. 17, 2019	Conduction (CO01-SZ)
Pulse Limiter	COM-POWER	LIT-153 Transient Limiter	53139	150kHz~30MHz	Oct. 18, 2017	Sep. 05, 2018	Oct. 17, 2018	Conduction (CO01-SZ)
EMI Test Receiver	R&S	ESR7	101404	9kHz~7GHz	Apr. 19, 2018	Sep. 14, 2018	Apr. 18, 2019	Radiation (03CH04-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Apr. 19, 2018	Sep. 14, 2018	Apr. 18, 2019	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	Aug. 28, 2018	Sep. 14, 2018	Aug. 27, 2019	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBE CK	BBHA9120D	9120D-1285	1GHz~18GHz	Dec. 13, 2017	Sep. 14, 2018	Dec. 12, 2018	Radiation (03CH04-SZ)
Horn Antenna	SCHWARZBE CK	BBHA9170	9170#679	15GHz~40GHz	Apr. 20, 2018	Sep. 14, 2018	Apr. 19, 2019	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 19, 2017	Sep. 14, 2018	Oct. 18, 2018	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	TTA1840-35-H G	1988315	18GHz~40GHz	Jul. 26, 2018	Sep. 14, 2018	Jul. 25, 2019	Radiation (03CH04-SZ)
Amplifier	Agilent Technologies	83017A	MY53270156	500MHz~26.5G Hz	Apr. 19, 2018	Sep. 14, 2018	Apr. 18, 2019	Radiation (03CH04-SZ)
AC Power Source	Chroma	61601	N/A	N/A	NCR	Sep. 14, 2018	NCR	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Sep. 14, 2018	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Sep. 14, 2018	NCR	Radiation (03CH04-SZ)

NCR: No Calibration Required

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## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence	2.6 dB
of 95% (U = 2Uc(y))	2.0 UB

### <u>Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)</u>

Measuring Uncertainty for a Level of Confidence	5.0 dB
of 95% (U = 2Uc(y))	3.0 db

### <u>Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)</u>

Measuring Uncertainty for a Level of Confidence	4.8 dB
of 95% (U = 2Uc(y))	4.0 UB

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