



# FCC CERTIFICATION REPORT

**Test Report No. : MH/2019/C0119**

**Applicant : Sharp Corporation, Mobile Communication B.U.**

**Address : 2-13-1, Hachihonmatsu-lida, Higashi-hiroshima-shi, Hiroshima, 739-0192, Japan**

**Manufacturer : Sharp Corporation**

**Address : 1 Takumi-cho, Sakai-ku, Sakai City, Osaka 590-8522, Japan**

**Equipment Under Test (EUT) :**

**Product Name : Smart phone**

**Standards : FCC Part 15, Subpart B, Class B**

**FCC Designation Numbers : 916890 / TW1087**

**Date of Sample Receipt : Dec. 24, 2019**

**Date of Test : Dec. 27, 2019 ~ Jan. 06, 2020**

**Date of Issue : Jan. 17, 2020**

<b>Test Result :</b>	<b>PASS</b>
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In the configuration tested, the EUT complied with the standards specified above.

**Remarks :**

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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**Tested By:**

*Jeffrey Chou*

**Date**

Jan. 17, 2020

**Jeffrey Chou (Engineer)**

**Approved By**

*Eddy Cheng*

**Date**

Jan. 17, 2020

**Eddy Cheng (Asst. Supervisor)**



Testing Laboratory  
0513

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## Revision History

Revision	Description	Issue Date	Remark
00	Original.	Jan. 17, 2020	MH/2019/C0119

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# 1. General Information

## 1.1 Applicant & Manufacturer Information

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Hiroshima, 739-0192, Japan  
Manufacturer : Sharp Corporation  
Address of Manufacturer : 1 Takumi-cho, Sakai-ku, Sakai City, Osaka 590-  
8522, Japan

## 1.2 General Description of EUT

Product Name : Smart phone

## 1.3 Details of EUT

Power Supply : AC 100~240V, 50/60Hz  
Highest operate description : 5850 MHz  
Battery : 3.85V, 3730mAh, 14.4Wh  
Worst case : CE worst case : Config 2  
Below RE worst case : Config 2  
Above RE worst case : Config 2

FCC ID : APYHRO00281	UFS memory	UFS memory	PCB(MAIN)	PCB(ANT)	(Select which one is worst case)
1st Source	Vendor A	Vendor A	Vendor A	Vendor A	Worst case
2nd Source	Vendor A	Vendor B	Vendor B	Vendor B	V
3rd Source	Vendor B	Vendor A	Vendor B	Vendor B	V

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<b>Accessories List:</b> <b>AC Charger : Salom/XN-2QC25</b> <b>Data Cable : Luxshare-ICT/L6KU2007-CS-H</b> <b>PHF : Sony / MDR-EX15AP</b>				
	<b>Config 1</b>	<b>Config 2</b>	<b>Config 3</b>	<b>Config 4</b>
Applicable standard	FCC 15B			
Accessories	EUT + AC Adaptor +USB Cable +PHF	EUT +USB Cable +PHF	EUT + AC Adaptor +USB Cable +PHF	EUT + AC Adaptor +USB Cable +PHF
Main function	Speech	Data Link	Camera	RX Receive
Additional function	BT+WLAN2.4G/5G+GNSS+NFC			
Description				
radiated emission	GSM 850, 1900 WCDMA BII, BIV, BV LTE B02, 04, 05, 07, 12, 13, 17, 38, 41	Data R/W	MP3/ ;REC mode (Front/Back) ;play REC	GSM 850 WCDMA BV LTE B05
conducted emission (DC Power)	NA	NA	NA	NA
conducted emission (AC Power)	GSM 850, 1900 WCDMA BII, BIV, BV LTE B02, 04, 05, 07, 12, 13, 17, 38, 41	Data R/W	MP3/ ;REC mode (Front/Back) ;play REC	GSM 850 WCDMA BV LTE B05

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## 1.4 Operation Procedure

### Config 1

1. Let EUT install with SIM Card & Micro SD Card & Earphone, connect to Adapter with USB Cable.
2. Turn on BT and Link BT Speaker.
3. Turn on Wifi, link to the WiFi-AP with same NB and NB ping EUT IP address.
4. Set up a GPS simulator and execute GPS Test.app.
5. Confirm the NFC function before and after the test.
6. Set up the base station and set the link/idle according to Config.
7. Start testing.

### Config 2

1. Let EUT install with SIM Card & Micro SD Card & Earphone, connect to NB with USB Cable and turn it on.
2. Turn on BT and Link BT Speaker.
3. Turn on Wifi, link to the WiFi-AP with same NB and NB ping EUT IP address.
4. Set up a GPS simulator and execute GPS Test.app.
5. Confirm the NFC function before and after the test.
6. NB performs data read/write with EUT according to Config.
7. Start testing.

### Config 3

1. Let EUT install with SIM Card & Micro SD Card & Earphone, connect to Adapter with USB Cable.
2. Turn on BT and Link BT Speaker.
3. Turn on Wifi, link to the WiFi-AP with same NB and NB ping EUT IP address.
4. Set up a GPS simulator and execute GPS Test.app.
5. Confirm the NFC function before and after the test.
6. Perform Camera (Front/Back) Record / Play REC / MP3 function according to Config.
7. Start testing.

### Config 4

1. Let EUT install with SIM Card & Micro SD Card & Earphone, connect to Adapter with USB Cable.
2. Turn on BT and Link BT Speaker.
3. Turn on Wifi, link to the WiFi-AP with same NB and NB ping EUT IP address.
4. Set up a GPS simulator and execute GPS Test.app.
5. Confirm the NFC function before and after the test.
6. Set up the base station and set the Rx Receive according to Config.
7. Start testing.

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### 1.5 Description of Support Units

PRODUCT	MANUFACTURER	MODEL NO.	SERIAL NO.
SIM Card	R&S	CMW-Z05	8952530076180138474
Micro SD	Transcend	Micro SDHC(Class 10)	TS32GUSDU1
BT Speaker	Creative	MF8090	YFMF8090245R00855Y
Radio Communication Analyzer	R&S	CMU200	102189
Radio Communication Analyzer	R&S	CMW500	1201.002K50-152303-Zr
AP	BUFFALO	WZR-HP-G300NH2	44066221202559[[G]]
GPS Signal Generator	Spectracom	GSG53 GNSS4	200218
Notebook(Win10)	DELL	P56F	59WSJ72
Mouse	Logitech	M-U0026	1738HS05FGU8
Adapter	Salom	XN-2QC25	N/A
Earphone	Sony	MDR-EX15AP	N/A

### Support Equipment Used in Tested Cable

Cable Type	Core	Length	Shielding/Non-shielding
USB cable	N/A	1m	Shielding
USB cable	N/A	1.8m	Shielding
Earphone cable	N/A	1.3m	Non-shielding

### 1.6 Modification List

No modification was made by SGS Taiwan Electronics & Communication Laboratory.

### 1.7 Accessories Cable List

Cable Type	Core	Length	Shielding/Non-shielding
N/A	N/A	N/A	N/A

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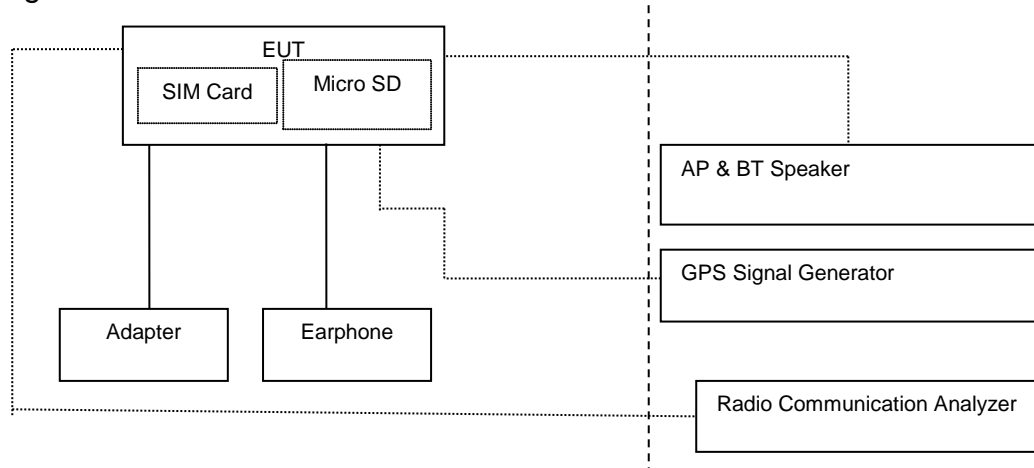
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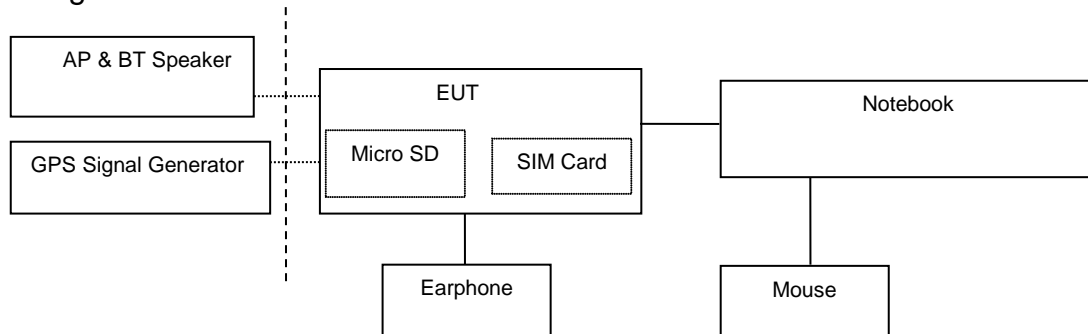
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## 1.8 Test Set-Up Configuration

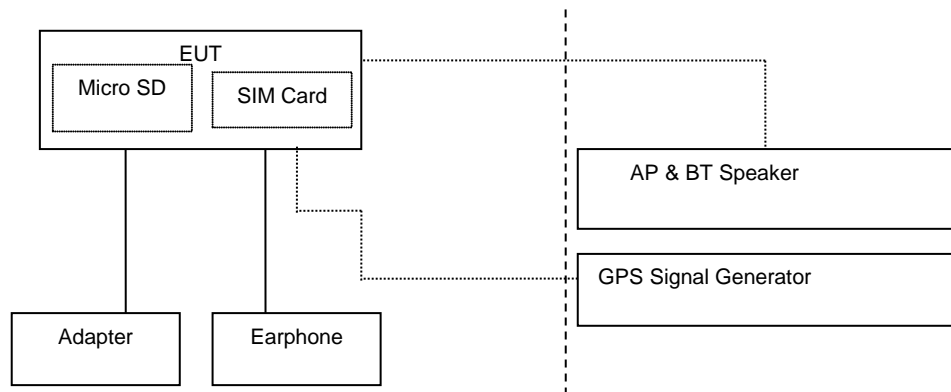
Config 1 & 4



Config 2



Config 3



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## 1.9 Measurement Procedure

Conducted Emission Testing was performed according to ANSI C63.4:2014 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall.

Radiated Emission Testing was performed according to ANSI C63.4:2014 at the 3/10m semi-anechoic chamber. The EUT was placed on a 0.8m high table along with the peripherals. The turn table was placed 10m distance from the antenna. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for production of maximum emission.

The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Maximum emission levels are then reported.

## 1.10 Standards Applicable for Testing

Tests to be carried out under FCC Part 15, Subpart B/CISPR 22

Test Standards	Status
FCC Part 15, Subpart B/ CISPR 22	Applicable
Deviation from Standard	No deviation

## 1.11 Decision Rules of Results

Reported measurement data comply with ANSI C63.4:2014

Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

## 1.12 Summary of Results

Highest Emission					
Standard	Test Type	Result	Phase/Pol.	Frequency(MHz)	Margin(dB)
FCC Part 15 Subpart B Class B	Conducted Emission	PASS	Line	0.2980	-14.15 (QP)
			Neutral	0.2940	-15.41 (QP)
	Radiated Emission	PASS	Ver.	167.9800	-4.91 (QP)

## 1.13 Reporting Statements of Conformity

The conformity statement in this report is based solely on the test results, measurement uncertainty is excluded.

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## 2. EMISSION

### 2.1 Test Results

	Results
Conducted Emission	Pass
Radiated Emission	Pass

### 2.2 Frequency Range

#### FCC Part 15, Subpart B:

Conducted Emission : 150 kHz - 30 MHz

Radiated Emission : See below table

Highest frequency generated or Upper frequency of measurement  
used in the device or on which the range (MHz)  
device operates or tunes (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

### 2.3 Limits of Conducted and Radiated Emission

#### 2.3.1 Limits of Conducted Emission

##### FCC Part 15, Subpart B/CISPR 22:

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi - peak	Average	Quasi - peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note : (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected there to, shall not exceed the level of field strengths specified above.

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### 2.3.2 Limits of Radiated Emissions

#### FCC Part 15, Subpart B Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30~88	39	40
88~216	43.5	43.5
216~960	46.44	46
Above 960	49.54	54

- Detector Function : Peak , Average

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	79.3	59.3	73.9	53.9

#### CISPR 22 Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30-230	40	30
230-1000	47	37

NOTE 1 The lower limit shall apply at the transition frequency.

NOTE 2 Additional provisions may be required for cases where interference occurs.

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Average	Peak	Average	Peak
1~3	56	76	50	70
3~6	60	80	54	74

NOTE The lower limit applies at the transition frequency.

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## 2.4. Test of Conducted Emission

### 2.4.1 Test Equipments

SGS Conducted_Emission HWAYA Conducted Room No.A EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 3	101311	2019/7/2	2020/7/1
Coaxial Cables	EMC Instruments Corp	EMCRG58-BM-BM-3000	160812	2019/8/12	2020/8/11
Pulse Limiter	Narda S.T.S.	PMM PL01	1110X30602	2019/8/12	2020/8/11
LISN	Schwarzbeck	NSLK 8127	8127-648	2019/7/12	2020/7/11
LISN	Schwarzbeck	NSLK 8128	NSLK8128-300	2019/9/16	2020/9/15
Communication Tester	R&S	CMU 200	119988	2019/2/22	2020/2/21
Communication Tester	R&S	CMW 500	152303	2019/2/22	2020/2/21
Communication Tester	Anritsu	MT8820C	6201465315	N.C.R.	N.C.R.
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2-3	N.C.R.	N.C.R.
SGS Taiwan LTD. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan District, Taoyuan City 33383, Taiwan (R.O.C.) Measurement Uncertainty of Conducted Emission Expanded uncertainty U <sub>lab</sub> (K=2) of conducted emission is 2.25 dB Theory values uncertainty U <sub>cispr</sub> 16-4-2 :2011+A1_2014 (K=2) of AC mains conducted Emission is 3.44dB					

### 2.4.2 Operating Environment

Temperature : 22 degree C

Humidity : 62 %RH

Atmospheric Pressure : 990 hpa

### 2.4.3 Measurement Level Calculation

Factor = LISN insertion loss + Cable loss + Pulse Limiter Insertion Loss

Measurement Level = Reading Level + Factor

Over (Margin) = Measurement Level – Limit

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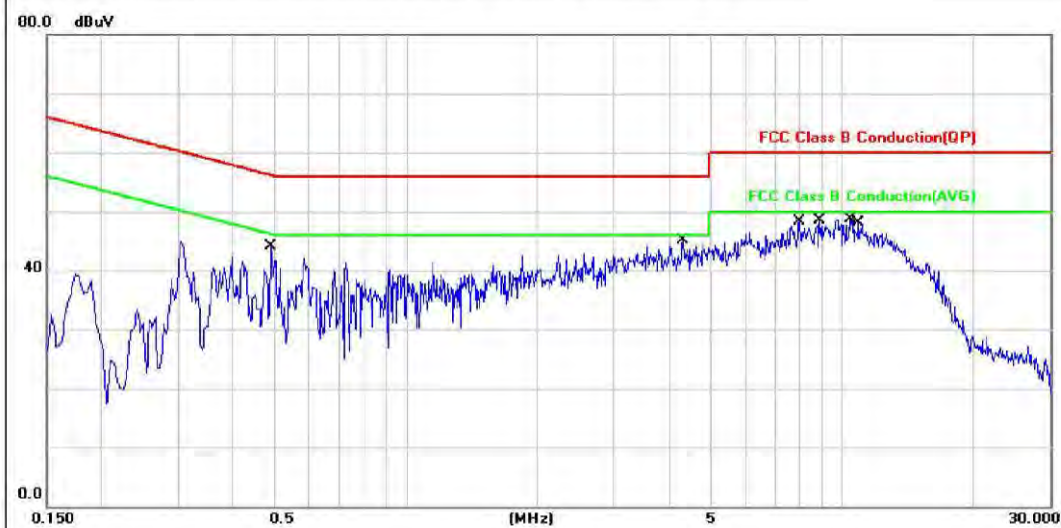


## 2.4.4 Measurement Data:

## Config\_1\_L

Site: Conduction Room A	Date: 2019/12/30	Time: 下午 07:52:20
Limit: FCC Class B Conduction(QP)	Phase: L1	Temperature: 24 °C
Mode: Config_1	Power: AC120V/60Hz	Humidity: 62 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: LTE B13		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.4900	41.18	0.13	41.31	56.17	-14.86	QP	
2		0.4900	30.52	0.13	30.65	46.17	-15.52	AVG	
3		4.3340	37.64	0.32	37.96	56.00	-18.04	QP	
4		4.3340	28.44	0.32	28.76	46.00	-17.24	AVG	
5		8.0020	39.94	0.44	40.38	60.00	-19.62	QP	
6		8.0020	29.26	0.44	29.70	50.00	-20.30	AVG	
7		8.8700	40.41	0.47	40.88	60.00	-19.12	QP	
8		8.8700	29.58	0.47	30.05	50.00	-19.95	AVG	
9		10.4140	40.59	0.52	41.11	60.00	-18.89	QP	
10		10.4140	29.86	0.52	30.38	50.00	-19.62	AVG	
11		10.9420	39.55	0.55	40.10	60.00	-19.90	QP	
12		10.9420	29.56	0.55	30.11	50.00	-19.89	AVG	

\*:Maximum data x:Over limit !:over margin

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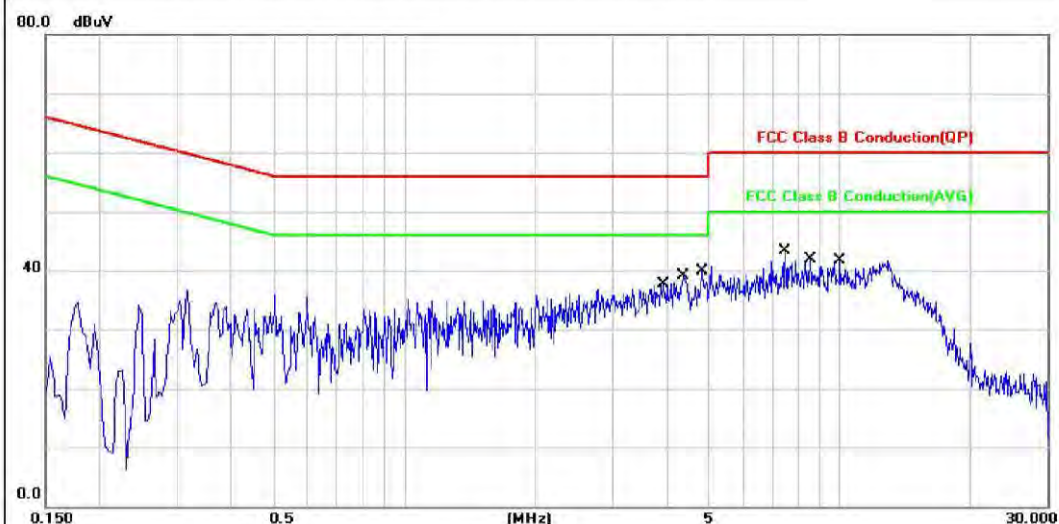
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## Config\_1\_N

Site: : Conduction Room A	Date: 2019/12/30	Time: 下午 07:57:13
Limit: FCC Class B Conduction(QP)	Phase: N	Temperature: 24 °C
Mode: Config_1	Power: AC120V/60Hz	Humidity: 62 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: LTE B13		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory Address: No.2, Ke9 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		3.9260	32.89	0.27	33.16	56.00	-22.84	QP	
2		3.9260	23.28	0.27	23.55	46.00	-22.45	AVG	
3		4.4060	32.80	0.28	33.08	56.00	-22.92	QP	
4		4.4060	23.81	0.28	24.09	46.00	-21.91	AVG	
5		4.8260	32.20	0.29	32.49	56.00	-23.51	QP	
6	*	4.8260	23.99	0.29	24.28	46.00	-21.72	AVG	
7		7.4980	33.41	0.33	33.74	60.00	-26.26	QP	
8		7.4980	24.76	0.33	25.09	50.00	-24.91	AVG	
9		8.5860	33.10	0.35	33.45	60.00	-26.55	QP	
10		8.5860	25.21	0.35	25.56	50.00	-24.44	AVG	
11		10.0220	33.12	0.38	33.50	60.00	-26.50	QP	
12		10.0220	25.24	0.38	25.62	50.00	-24.38	AVG	

\*:Maximum data x:Over limit l:over margin

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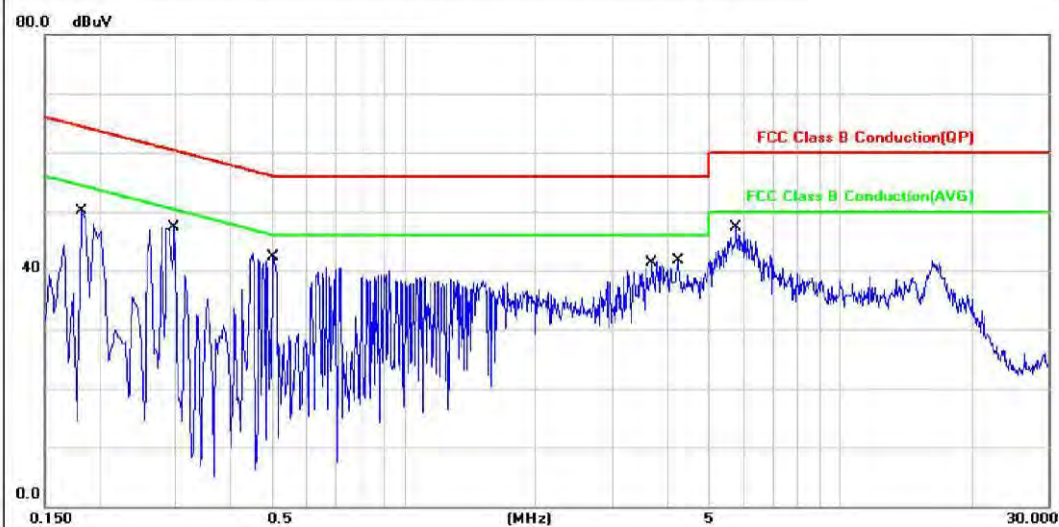
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## Config\_2\_L

Site: Conduction Room A	Date: 2019/12/28	Time: 下午 06:22:52
Limit: FCC Class B Conduction(QP)	Phase: L1	Temperature: 19 °C
Mode: Config_2	Power: AC120V/60Hz	Humidity: 52 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: DATA WRITE		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		0.1820	48.14	0.09	48.23	64.39	-16.16	QP	
2		0.1820	38.07	0.09	38.16	54.39	-16.23	AVG	
3	*	0.2980	46.02	0.13	46.15	60.30	-14.15	QP	
4		0.2980	32.89	0.13	33.02	50.30	-17.28	AVG	
5		0.5020	40.93	0.13	41.06	56.00	-14.94	QP	
6		0.5020	25.78	0.13	25.91	46.00	-20.09	AVG	
7		3.7180	33.32	0.30	33.62	56.00	-22.38	QP	
8		3.7180	20.85	0.30	21.15	46.00	-24.85	AVG	
9		4.2540	34.91	0.32	35.23	56.00	-20.77	QP	
10		4.2540	22.74	0.32	23.06	46.00	-22.94	AVG	
11		5.8020	40.75	0.37	41.12	60.00	-18.88	QP	
12		5.8020	29.45	0.37	29.82	50.00	-20.18	AVG	

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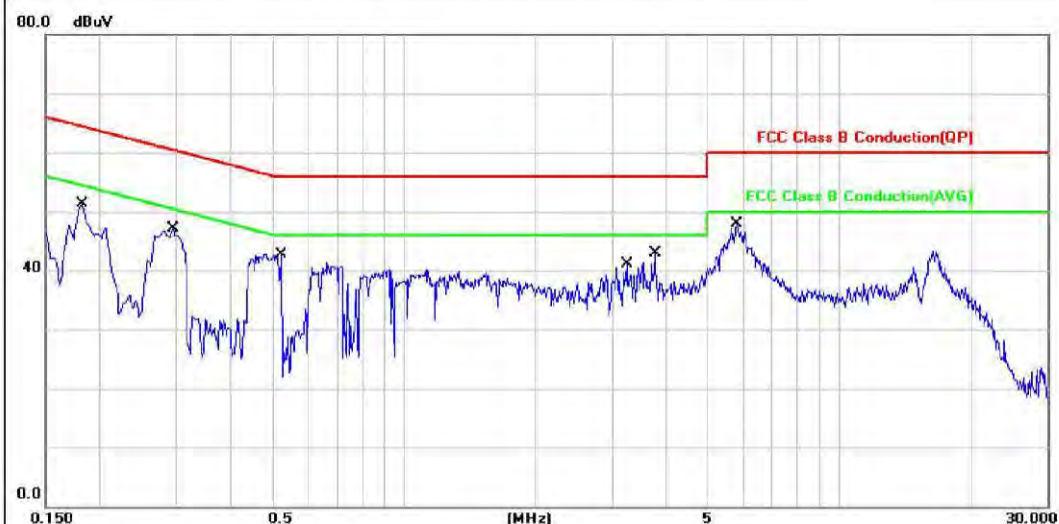
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## Config\_2\_N

Site: : Conduction Room A	Date: 2019/12/28	Time: 下午 06:26:03
Limit: FCC Class B Conduction(QP)	Phase: N	Temperature: 19 °C
Mode: Config_2	Power: AC120V/60Hz	Humidity: 52 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: DATA WRITE		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		0.1820	47.78	0.07	47.85	64.39	-16.54	QP	
2		0.1820	37.47	0.07	37.54	54.39	-16.85	AVG	
3	*	0.2940	44.89	0.11	45.00	60.41	-15.41	QP	
4		0.2940	30.75	0.11	30.86	50.41	-19.55	AVG	
5		0.5220	34.25	0.11	34.36	56.00	-21.64	QP	
6		0.5220	14.13	0.11	14.24	46.00	-31.76	AVG	
7		3.2420	31.86	0.26	32.12	56.00	-23.88	QP	
8		3.2420	18.36	0.26	18.62	46.00	-27.38	AVG	
9		3.7740	31.18	0.27	31.45	56.00	-24.55	QP	
10		3.7740	18.11	0.27	18.38	46.00	-27.62	AVG	
11		5.8220	40.83	0.30	41.13	60.00	-18.87	QP	
12		5.8220	29.73	0.30	30.03	50.00	-19.97	AVG	

\*:Maximum data x:Over limit t:over margin

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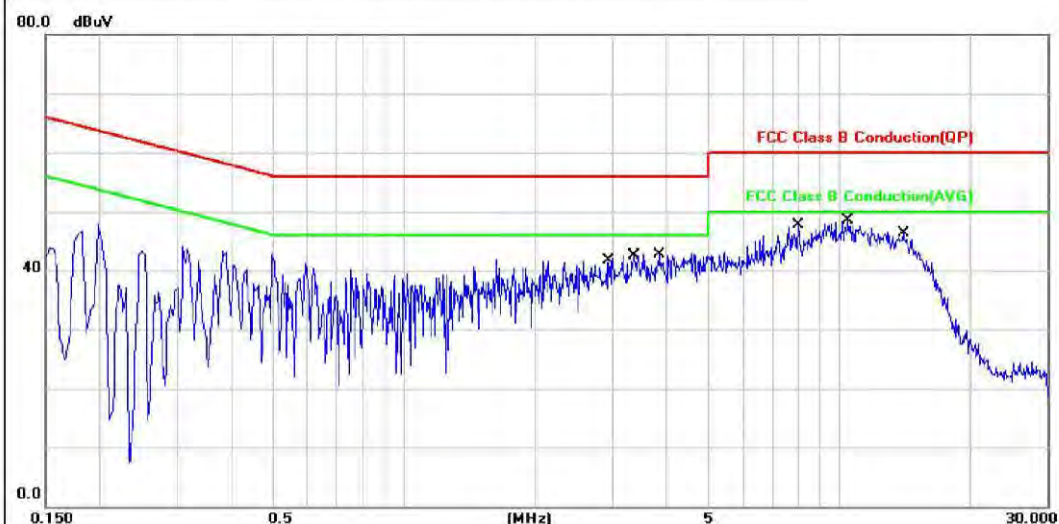
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## Config\_3\_L

Site: : Conduction Room A	Date: 2019/12/28	Time: 下午 06:55:32
Limit: FCC Class B Conduction(QP)	Phase: L1	Temperature: 19 °C
Mode: Config_3	Power: AC120V/60Hz	Humidity: 52 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: REC BACK		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		2.9540	35.06	0.28	35.34	56.00	-20.66	QP	
2		2.9540	26.16	0.28	26.44	46.00	-19.56	AVG	
3		3.3780	35.99	0.29	36.28	56.00	-19.72	QP	
4		3.3780	27.00	0.29	27.29	46.00	-18.71	AVG	
5		3.8620	35.76	0.31	36.07	56.00	-19.93	QP	
6	*	3.8620	27.17	0.31	27.48	46.00	-18.52	AVG	
7		8.0340	39.67	0.44	40.11	60.00	-19.89	QP	
8		8.0340	29.27	0.44	29.71	50.00	-20.29	AVG	
9		10.4940	40.26	0.52	40.78	60.00	-19.22	QP	
10		10.4940	29.74	0.52	30.26	50.00	-19.74	AVG	
11		14.0620	39.02	0.67	39.69	60.00	-20.31	QP	
12		14.0620	29.47	0.67	30.14	50.00	-19.86	AVG	

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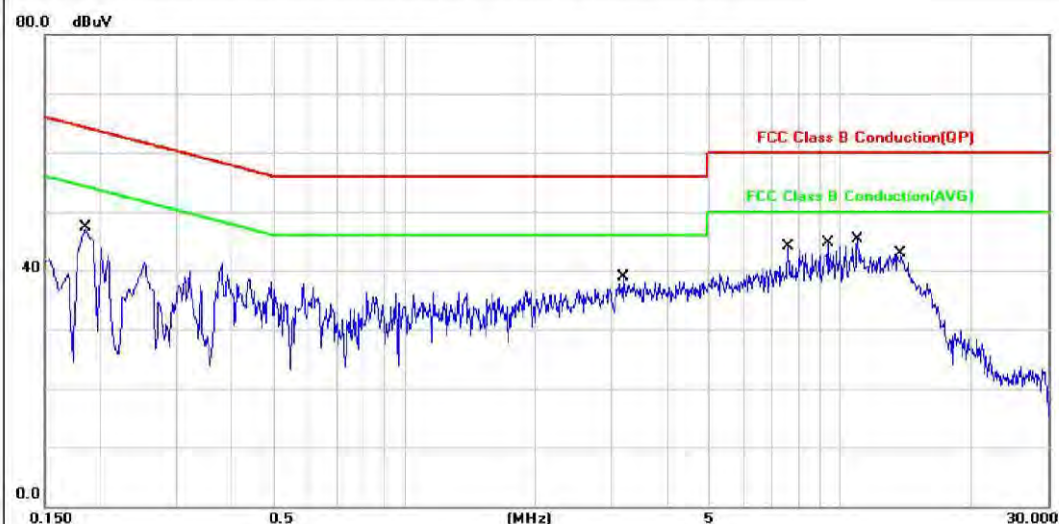
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## Config\_3\_N

Site: Conduction Room A	Date: 2019/12/28	Time: 下午 06:59:41
Limit: FCC Class B Conduction(QP)	Phase: N	Temperature: 19 °C
Mode: Config_3	Power: AC120V/60Hz	Humidity: 52 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: REC BACK		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.1860	44.39	0.08	44.47	64.21	-19.74	QP	
2		0.1860	30.80	0.08	30.88	54.21	-23.33	AVG	
3		3.1820	31.22	0.26	31.48	56.00	-24.52	QP	
4		3.1820	21.89	0.26	22.15	46.00	-23.85	AVG	
5		7.6180	34.00	0.34	34.34	60.00	-25.66	QP	
6		7.6180	25.36	0.34	25.70	50.00	-24.30	AVG	
7		9.4420	34.87	0.37	35.24	60.00	-24.76	QP	
8		9.4420	26.21	0.37	26.58	50.00	-23.42	AVG	
9		10.9820	34.19	0.40	34.59	60.00	-25.41	QP	
10		10.9820	25.83	0.40	26.23	50.00	-23.77	AVG	
11		13.8140	35.53	0.45	35.98	60.00	-24.02	QP	
12		13.8140	25.00	0.45	25.45	50.00	-24.55	AVG	

\*:Maximum data x:Over limit l:over margin

Page: 1

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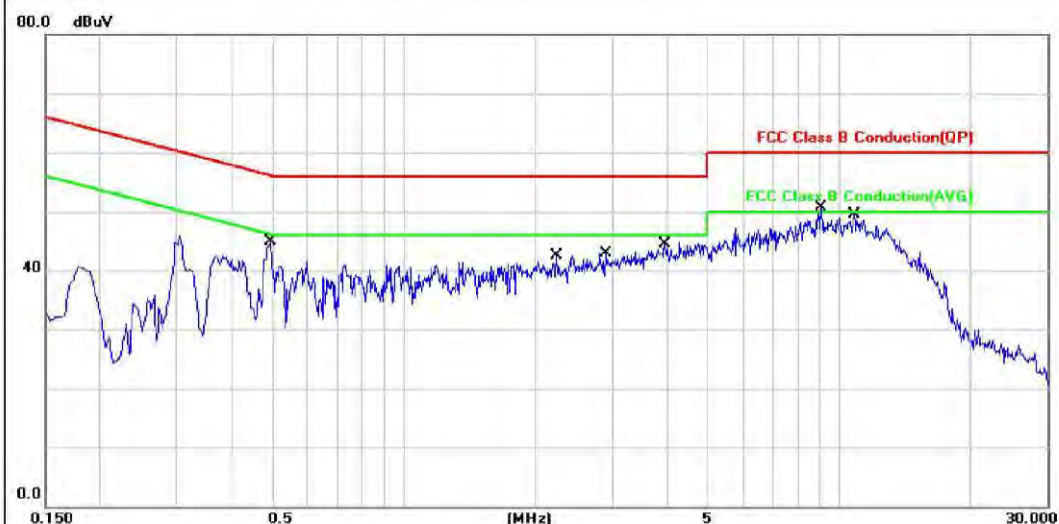
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## Config\_4\_L

Site: : Conduction Room A	Date: 2019/12/30	Time: 下午 06:36:23
Limit: FCC Class B Conduction(QP)	Phase: L1	Temperature: 24 °C
Mode: Config_4	Power: AC120V/60Hz	Humidity: 62 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: LTE B5		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		0.4940	38.98	0.13	39.11	56.10	-16.99	QP	
2	*	0.4940	29.28	0.13	29.41	46.10	-16.69	AVG	
3		2.2460	36.17	0.27	36.44	56.00	-19.56	QP	
4		2.2460	26.42	0.27	26.69	46.00	-19.31	AVG	
5		2.9140	36.31	0.28	36.59	56.00	-19.41	QP	
6		2.9140	26.96	0.28	27.24	46.00	-18.76	AVG	
7		3.9820	37.47	0.31	37.78	56.00	-18.22	QP	
8		3.9820	28.60	0.31	28.91	46.00	-17.09	AVG	
9		9.0780	40.73	0.48	41.21	60.00	-18.79	QP	
10		9.0780	30.30	0.48	30.78	50.00	-19.22	AVG	
11		10.8260	40.78	0.54	41.32	60.00	-18.68	QP	
12		10.8260	30.34	0.54	30.88	50.00	-19.12	AVG	

\*:Maximum data x:Over limit t:over margin

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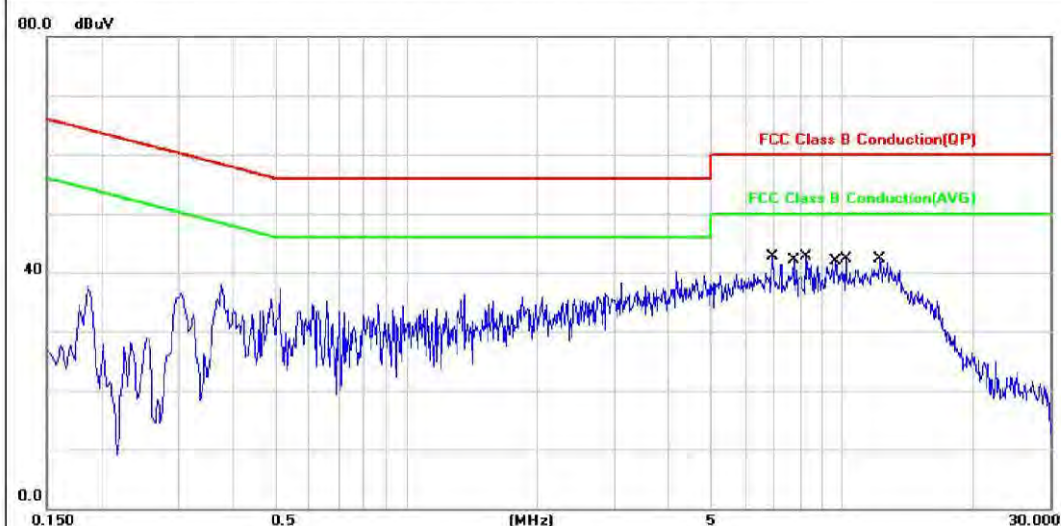




## Config\_4\_N

Site: Conduction Room A	Date: 2019/12/30	Time: 下午 06:41:14
Limit: FCC Class B Conduction(QP)	Phase: N	Temperature: 24 °C
Mode: Config_4	Power: AC120V/60Hz	Humidity: 62 %RH
Report: MH-2019-C0119		Air Pressure: 990 hpa
Tester: David Kang		
Note: LTE B5		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		6.9340	33.86	0.32	34.18	60.00	-25.82	QP	
2		6.9340	25.21	0.32	25.53	50.00	-24.47	AVG	
3		7.7500	34.56	0.34	34.90	60.00	-25.10	QP	
4		7.7500	25.53	0.34	25.87	50.00	-24.13	AVG	
5		8.2580	34.65	0.35	35.00	60.00	-25.00	QP	
6		8.2580	25.71	0.35	26.06	50.00	-23.94	AVG	
7		9.6660	33.18	0.37	33.55	60.00	-26.45	QP	
8		9.6660	25.48	0.37	25.85	50.00	-24.15	AVG	
9		10.2140	34.22	0.38	34.60	60.00	-25.40	QP	
10	*	10.2140	25.72	0.38	26.10	50.00	-23.90	AVG	
11		12.2180	35.46	0.42	35.88	60.00	-24.12	QP	
12		12.2180	25.11	0.42	25.53	50.00	-24.47	AVG	

\*:Maximum data x:Over limit !:over margin

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## 2.5 Test of Radiated Emission

### 2.5.1 Test Equipments

#### Below 1GHz

SGS Radiated_Below_1GHz HWAYA 10m_EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 7	100950	2019/12/11	2020/12/10
EMI Test Receiver	R&S	ESCI 3	101343	2019/2/1	2020/1/31
Broadband Antenna	SCHWAZBECK	VULB9168	9168-628	2019/9/9	2020/9/8
Broadband Antenna	SCHWAZBECK	VULB9168	9168-629	2019/9/9	2020/9/8
Pre Amplifier	EMC Instruments Corp.	EMC330	980178	2019/3/31	2020/3/30
Pre Amplifier	EMC Instruments Corp.	EMC330	980179	2019/3/31	2020/3/30
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150917	2019/9/18	2020/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150919	2019/9/18	2020/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150820	2019/9/18	2020/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150918	2019/9/18	2020/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150821	2019/9/18	2020/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150822	2019/9/18	2020/9/17
Universal Digital Radio Communication Tester	R&S	CMU 200	119988	2019/2/22	2020/2/21
Wideband Radio Communication Tester	R&S	CMW 500	152303	2019/2/22	2020/2/21
Radio Communication Analyzer	Anritsu	MT8820C	6201465315	N.C.R.	N.C.R.
Controller	MF	MF7802	N/A	N.C.R.	N.C.R.
Controller	MF	MF7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Site NSA	SGS	10M Chamber	10M SAC	2019/12/31	2020/12/30
Test S/W	Farad	EZ-EMC	Ver. SGS 10m-03A2-3	N.C.R.	N.C.R.

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 Measurement Uncertainty of Radiated Emission  
 Expanded uncertainty U<sub>lab</sub> (K=2) of radiated emission is 4.09 dB. (30MHz ~ 1000MHz)  
 Theory values uncertainty U<sub>cispr</sub> 16-4-2:2011+A1:2014 (K=2) of radiated emission is 5.22 dB. (30MHz ~ 1000MHz)

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## Above 1GHz

SGS Radiated_Above_1GHz HWAYA 966B EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	R&S	FSV 40	101419	2019/5/22	2020/5/21
EMI Test Receiver	R&S	ESR 7	101507	2019/9/4	2020/9/3
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA9120D673	2019/11/4	2020/11/3
Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170-184	2019/12/29	2020/12/28
Pre Amplifier	R&S	SCU-18	10203	2019/3/26	2020/3/25
Coaxial Cable	Huber+Suhner	SUCCOFLEX 104	MY 5817/4	2019/3/26	2020/3/25
Pre Amplifier	EMC Instruments	EMC184045B	980135	2019/10/27	2020/10/26
Coaxial Cable	EMC Instruments	EMC104-SM-SM	140923	2019/9/30	2020/9/29
Coaxial Cable	EMC Instruments	EMC104-SM-SM	140925	2019/9/30	2020/9/29
Coaxial Cable	EMC Instruments	EMC104-SM-SM	140927	2019/9/30	2020/9/29
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	MY 2651/2	2019/6/5	2020/6/4
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	MY 2153/2	2019/6/5	2020/6/4
Universal Digital Radio Communication Tester	R&S	CMU 200	119988	2019/2/22	2020/2/21
Wideband Radio Communication Tester	R&S	CMW 500	152303	2019/2/22	2020/2/21
Radio Communication Analyzer	Anritsu	MT8820C	6201465315	N.C.R.	N.C.R.
Controller	MF	MF7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Site VSWR	SGS	966 Chamber B	SAC-B	2019/10/8	2020/10/7
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2-3	N.C.R.	N.C.R.

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 Measurement Uncertainty of Radiated Emission  
 Expanded uncertainty (k=2) of radiated emission measurement is 5.06 dB. (1-6GHz)  
 Expanded uncertainty (k=2) of radiated emission measurement is 5.15 dB. (6-18GHz)  
 Expanded uncertainty Ulab (k=2) of radiated emission measurement is 5.19 dB. (18-26GHz)  
 Expanded uncertainty Ulab (k=2) of radiated emission measurement is 5.14 dB. (26-40GHz)  
 Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is 5.18 dB.(1-6GHz)  
 Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is 5.48 dB.(6-18GHz)  
 Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is ---- dB.(18-26GHz)  
 Theory values uncertainty Ucispr 16-4-2:2011+A1:2014 (K=2) of radiated emission measurement is ---- dB.(26-40GHz)

## 2.5.2 Operating Environment

Temperature : 22 degree C

Humidity : 62 %RH

Atmospheric Pressure : 990 hpa

## 2.5.3 Measurement Level Calculation

Correction Factor = Antenna Factor + Cable loss- Amplifier Gain

Measurement Level = Reading Level + Correction Factor

Over (Margin) = Measurement Level – Limit

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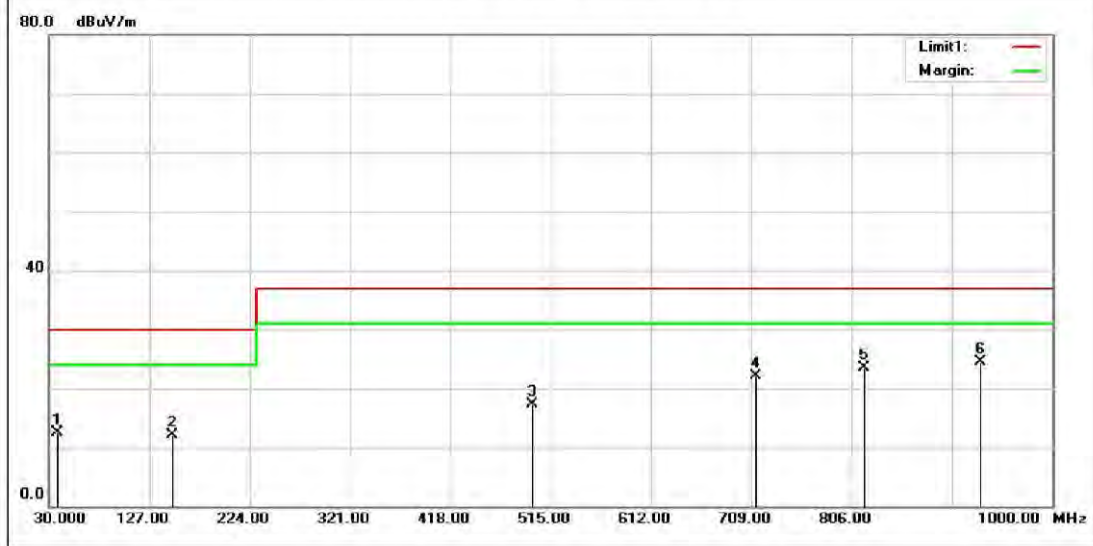
## 2.5.4 Measurement Data

## Below 1GHz

## Config\_1\_H

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 上午 03:54:28
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 59 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: WCDMA BII		

SGS Taiwan Ltd., Electronics & Communication Laboratory, Address: No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		37.7600	24.14	-11.59	12.55	30.00	-17.45			QP	
2		149.3100	23.66	-11.51	12.15	30.00	-17.85			QP	
3		497.5400	23.53	-6.14	17.39	37.00	-19.61			QP	
4		712.8800	23.26	-1.24	22.02	37.00	-14.98			QP	
5		818.6100	23.34	0.23	23.57	37.00	-13.43			QP	
6	*	930.1600	23.28	1.26	24.54	37.00	-12.46	400	180	QP	

\*:Maximum data    x:Over limit    !:over margin

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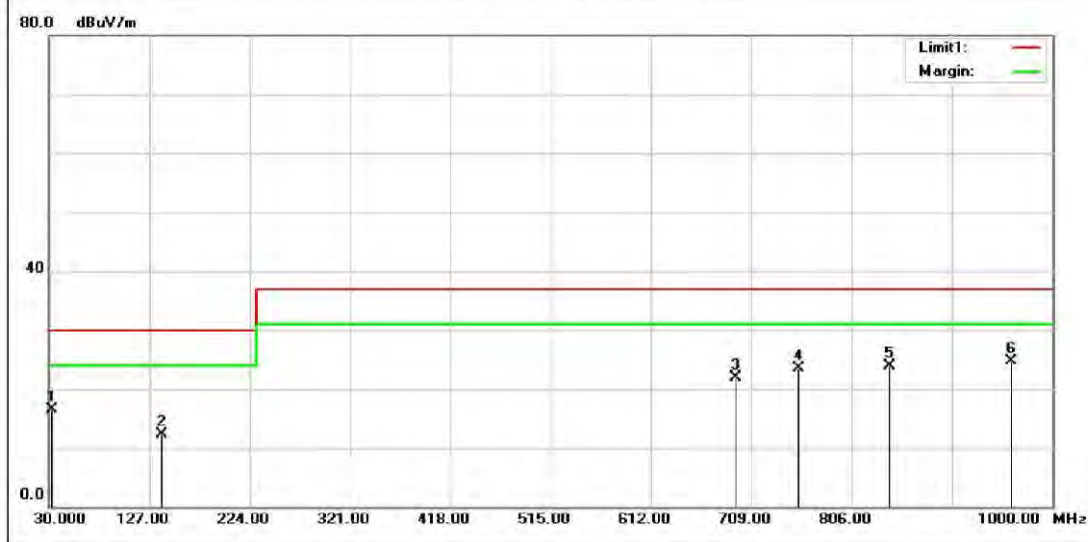




## Config\_1\_V

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 上午 03:54:27
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 59 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: WCDMA BII		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		32.9100	28.58	-12.05	16.53	30.00	-13.47			QP	
2		139.6100	23.68	-11.43	12.25	30.00	-17.75			QP	
3		694.4500	22.41	-0.48	21.93	37.00	-15.07			QP	
4		754.5900	22.15	1.29	23.44	37.00	-13.56			QP	
5		842.8600	22.17	1.70	23.87	37.00	-13.13			QP	
6	*	960.2300	22.22	2.50	24.72	37.00	-12.28	220	228	QP	

\*:Maximum data x:Over limit !:over margin

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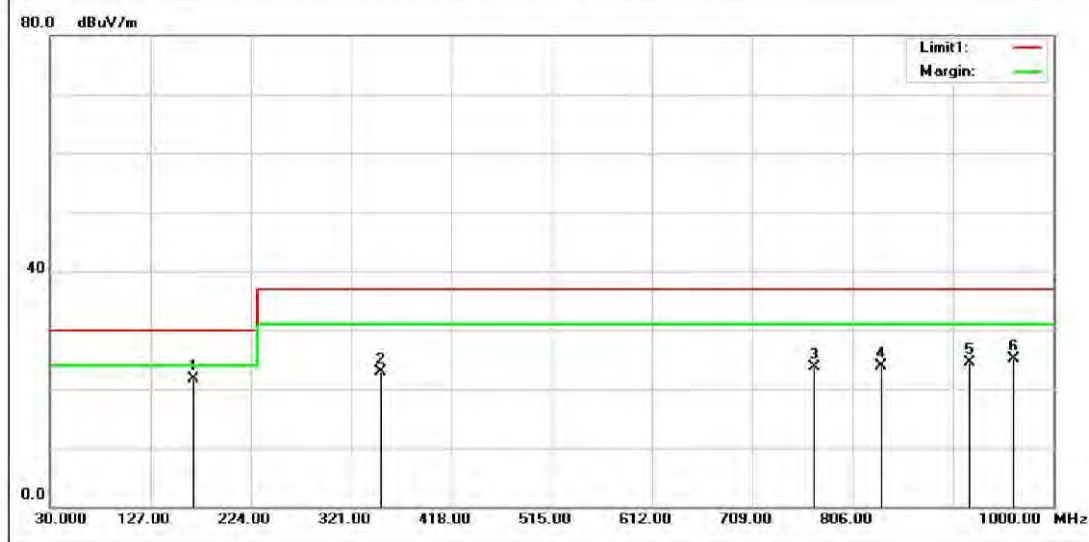




## Config\_2\_H

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 下午 09:52:38
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 2	Power: From System	Humidity: 62 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: Data Read (Internal Storage)		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1	*	168.0200	33.26	-11.60	21.66	30.00	-8.34	399	71	QP	
2		350.1000	32.15	-9.30	22.85	37.00	-14.15			QP	
3		769.1400	23.41	0.36	23.77	37.00	-13.23			QP	
4		833.1600	23.72	0.14	23.86	37.00	-13.14			QP	
5		918.5200	23.50	1.03	24.53	37.00	-12.47			QP	
6		961.2000	23.48	1.58	25.06	37.00	-11.94			QP	

\*:Maximum data x:Over limit !:over margin

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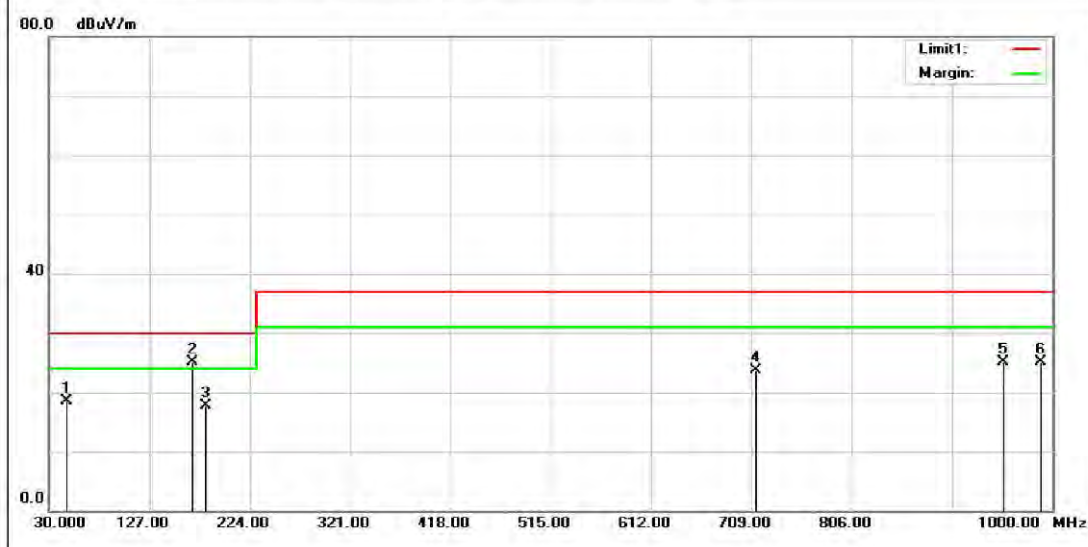
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## Config\_2\_V

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 下午 09:52:37
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 2	Power: From System	Humidity: 62 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: Data Read (Internal Storage)		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		46.9700	29.28	-10.84	18.44	30.00	-11.56			QP	
2	*	167.9800	35.81	-10.72	25.09	30.00	-4.91	110	54	QP	
3		181.3000	30.31	-12.63	17.68	30.00	-12.32			QP	
4		713.4500	23.89	-0.13	23.76	37.00	-13.24			QP	
5		952.4700	22.55	2.50	25.05	37.00	-11.95			QP	
6		988.3600	22.44	2.60	25.04	37.00	-11.96			QP	

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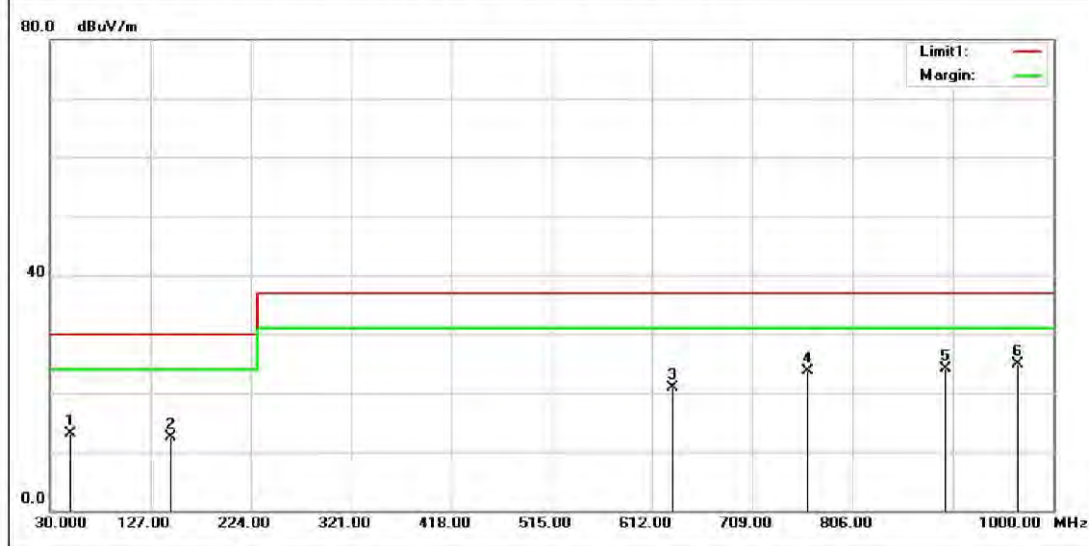
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## Config\_3\_H

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 上午 04:40:51
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 3	Power: AC 120V/60Hz	Humidity: 59 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: REC mode (Back)		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		50.3700	24.22	-11.16	13.06	30.00	-16.94			QP	
2		146.4000	24.07	-11.56	12.51	30.00	-17.49			QP	
3		632.3700	23.52	-2.58	20.94	37.00	-16.06			QP	
4		762.3500	23.29	0.32	23.61	37.00	-13.39			QP	
5		895.2400	23.42	0.61	24.03	37.00	-12.97			QP	
6	*	966.0500	23.40	1.52	24.92	37.00	-12.08	400	192	QP	

\*:Maximum data x:Over limit l:over margin

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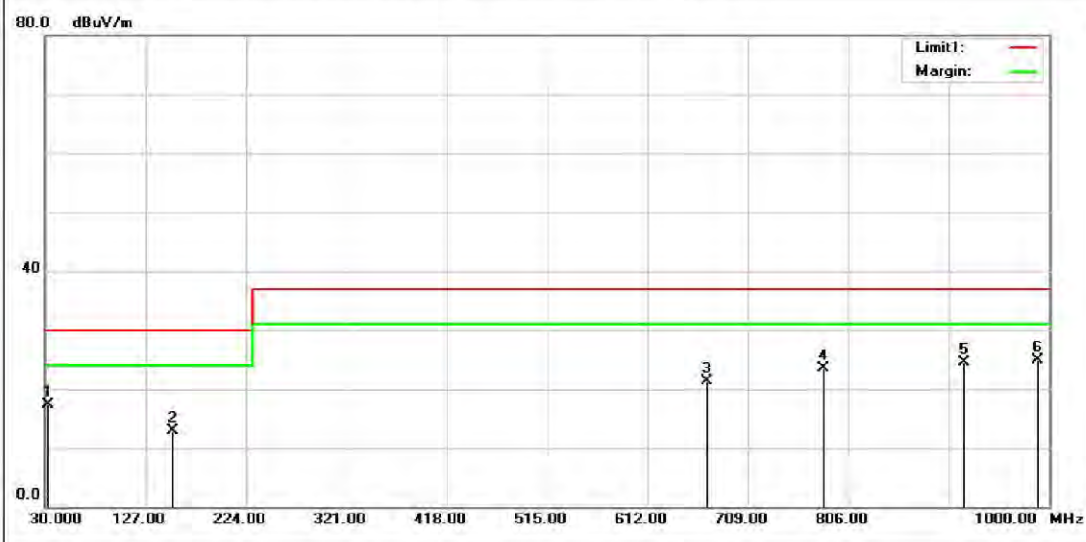
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### Config\_3\_V

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 上午 04:40:50
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 3	Power: AC 120V/60Hz	Humidity: 59 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: REC mode (Back)		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		32.9100	29.39	-12.05	17.34	30.00	-12.66			QP	
2		153.1900	23.74	-10.92	12.82	30.00	-17.18			QP	
3		669.2300	22.41	-1.11	21.30	37.00	-15.70			QP	
4		781.7500	22.26	1.34	23.60	37.00	-13.40			QP	
5		917.5500	22.41	2.07	24.48	37.00	-12.52			QP	
6	*	989.3300	22.22	2.60	24.82	37.00	-12.18	110	360	QP	

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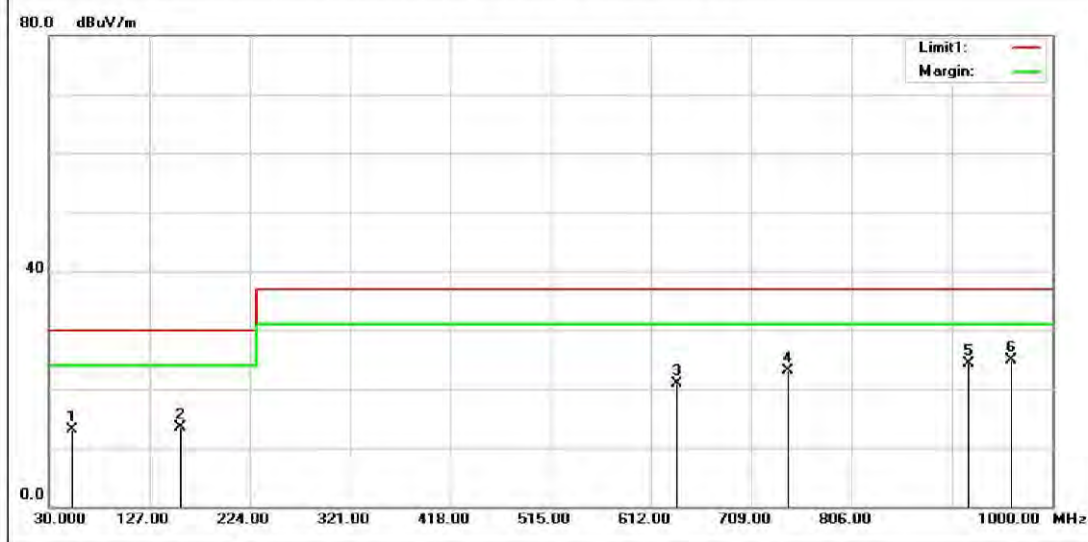




## Config\_4\_H

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 上午 03:30:44
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 59 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: LTE B05		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		52.3100	24.37	-11.18	13.19	30.00	-16.81			QP	
2		157.0700	24.39	-10.96	13.43	30.00	-16.57			QP	
3		637.2200	23.39	-2.53	20.86	37.00	-16.14			QP	
4		743.9200	23.18	0.01	23.19	37.00	-13.81			QP	
5		919.4900	23.35	1.04	24.39	37.00	-12.61			QP	
6	*	960.2300	23.25	1.60	24.85	37.00	-12.15	136	184	QP	

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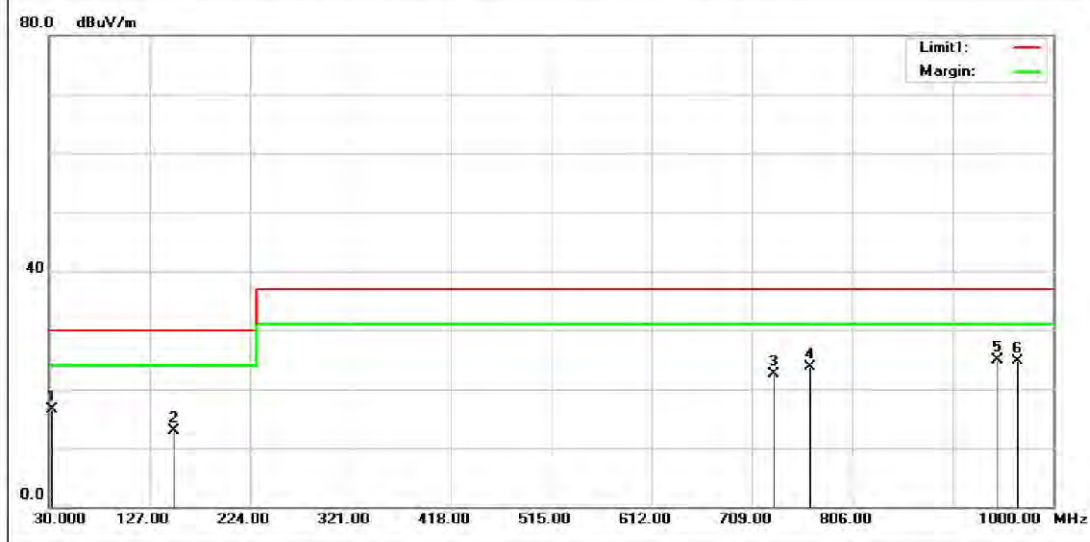
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## Config\_4\_V

Site: SGS 10m Chamber	Date: 2020/1/3	Time: 上午 03:30:43
Limit: CISPR22 Class B 10m Radiation	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 59 %
Report: File :MH-2019-C0119	Distance: 10m	Air Pressure: 990 hpa
Tester: Jeffrey Chou		
Note: LTE B05		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		32.9100	28.52	-12.05	16.47	30.00	-13.53			QP	
2		151.2500	23.71	-10.86	12.85	30.00	-17.15			QP	
3		730.3400	22.24	0.36	22.60	37.00	-14.40			QP	
4		765.2600	22.31	1.36	23.67	37.00	-13.33			QP	
5	*	946.6500	22.39	2.45	24.84	37.00	-12.16	220	12	QP	
6		965.0800	22.17	2.50	24.67	37.00	-12.33			QP	

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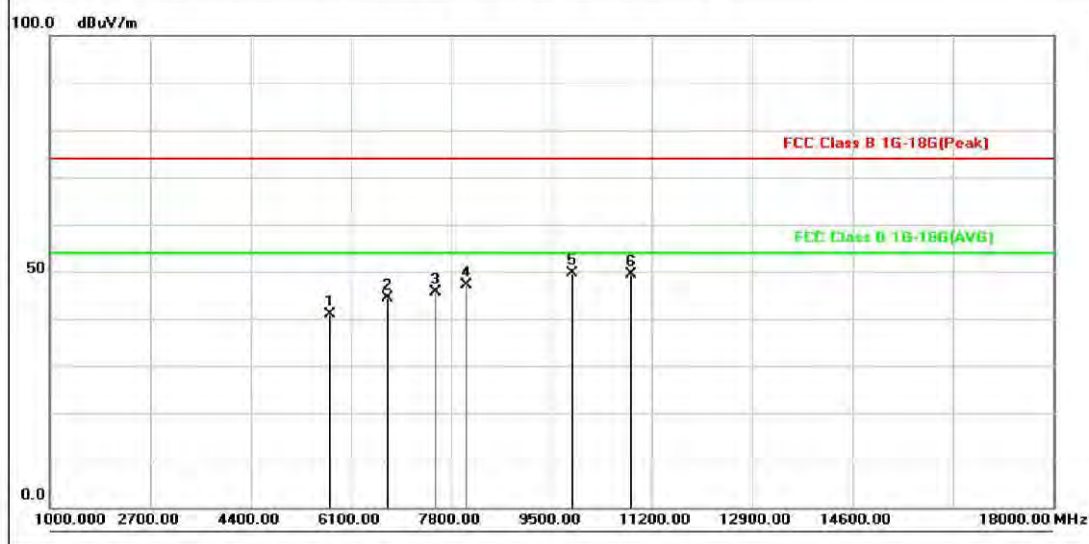
Above 1GHz

1GHz ~ 18GHz

Config\_1\_H

Site: SGS 966 Chamber B	Date: 2019/12/29	Time: 上午 04:49:31
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B02		

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1		5743.000	45.92	-5.08	40.84	74.00	-33.16			peak	
2		6712.000	45.91	-1.65	44.26	74.00	-29.74			peak	
3		7545.000	44.23	1.33	45.56	74.00	-28.44			peak	
4		8055.000	44.74	2.43	47.17	74.00	-26.83			peak	
5	*	9857.000	46.21	3.32	49.53	74.00	-24.47	100	150	peak	
6		10843.000	44.27	5.15	49.42	74.00	-24.58			peak	

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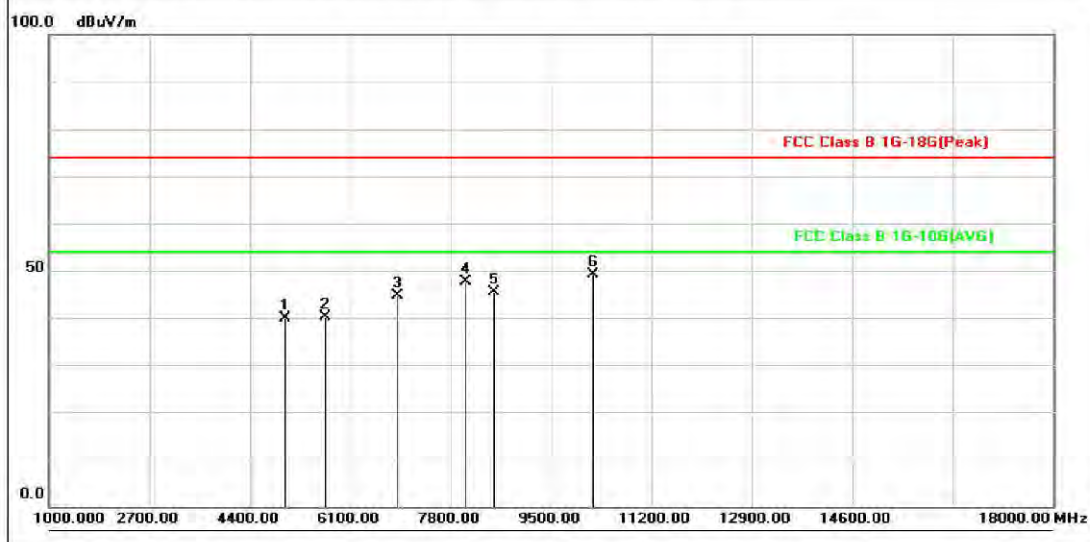
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## Config\_1\_V

Site: SGS 966 Chamber B	Date: 2019/12/29	Time: 上午 03:23:24
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B02		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory- Address: No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		4995.000	45.53	-5.73	39.80	74.00	-34.20			peak	
2		5675.000	45.58	-5.37	40.21	74.00	-33.79			peak	
3		6899.000	45.13	-0.57	44.56	74.00	-29.44			peak	
4		8055.000	45.22	2.43	47.65	74.00	-26.35			peak	
5		8531.000	44.65	0.80	45.45	74.00	-28.55			peak	
6	*	10214.000	45.43	3.65	49.08	74.00	-24.92	100	210	peak	

\*:Maximum data    x:Over limit    l:over margin

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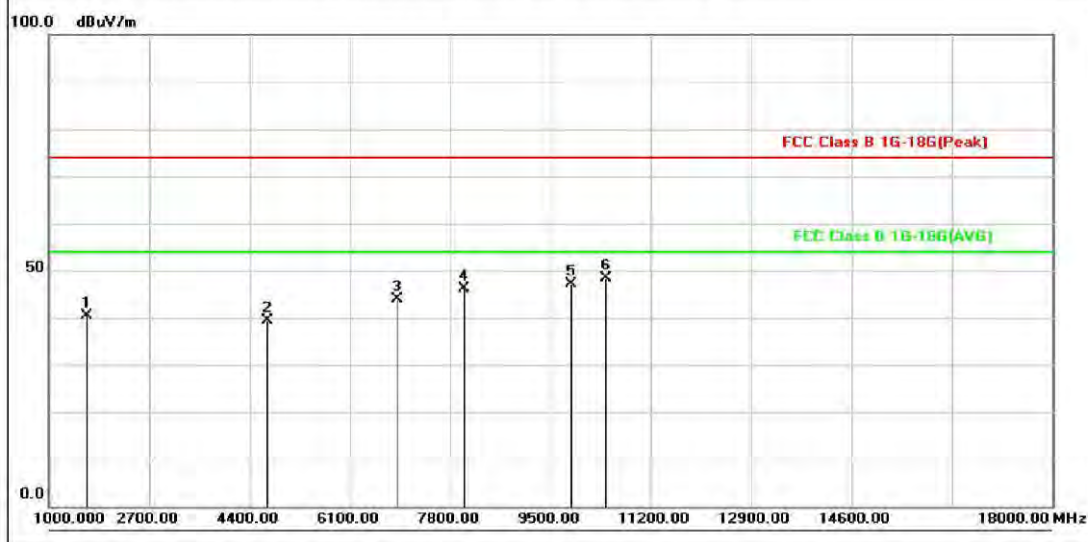




## Config\_2\_H

Site: SGS 966 Chamber B	Date: 2019/12/29	Time: 上午 05:59:06
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 2	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: Data ExInternal Read		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		1652.000	55.35	-14.98	40.37	74.00	-33.63			peak	
2		4706.000	45.65	-6.25	39.40	74.00	-34.60			peak	
3		6899.000	44.53	-0.57	43.96	74.00	-30.04			peak	
4		8038.000	43.60	2.47	46.07	74.00	-27.93			peak	
5		9840.000	43.79	3.25	47.04	74.00	-26.96			peak	
6	*	10435.000	44.13	4.20	48.33	74.00	-25.67	100	185	peak	

\*:Maximum data x:Over limit !:over margin

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## Config\_2\_V

Site: SGS 966 Chamber B	Date: 2019/12/29	Time: 上午 05:25:01
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 2	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: Data ExInternal Read		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory Address: No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		1942.000	60.10	-13.80	46.30	74.00	-27.70			peak	
2		5913.000	47.15	-4.76	42.39	74.00	-31.61			peak	
3		7834.000	43.12	1.84	44.96	74.00	-29.04			peak	
4		8548.000	44.47	0.87	45.34	74.00	-28.66			peak	
5		10197.000	43.92	3.61	47.53	74.00	-26.47			peak	
6	*	10979.000	44.61	5.37	49.98	74.00	-24.02	100	320	peak	

\*:Maximum data x:Over limit l:over margin

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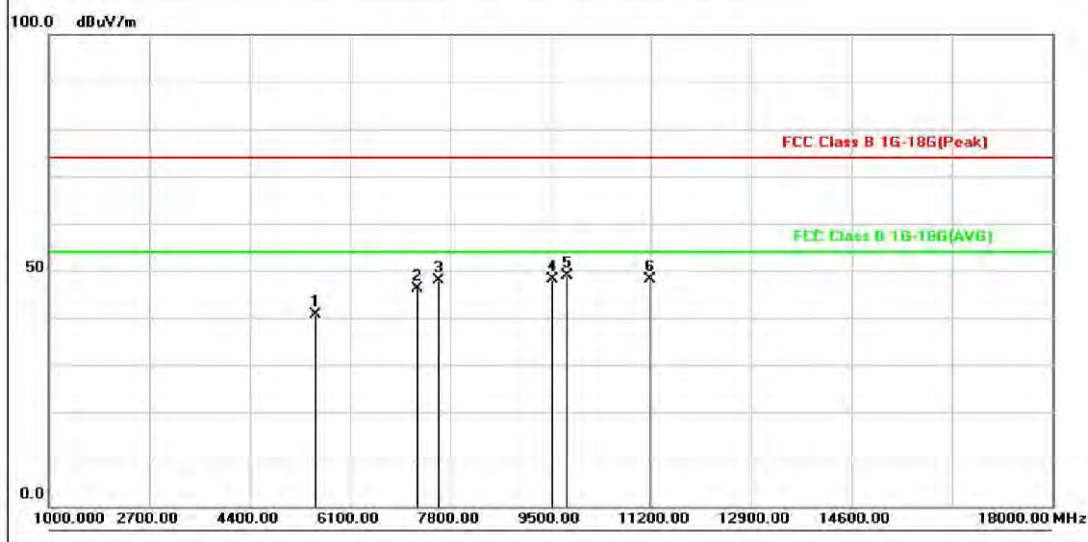
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## Config\_3\_H

Site: SGS 966 Chamber B	Date: 2019/12/29	Time: 上午 08:27:36
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 3	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: MP3		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		5522.000	46.02	-5.39	40.63	74.00	-33.37			peak	
2		7239.000	44.95	1.08	46.03	74.00	-27.97			peak	
3		7596.000	46.69	1.26	47.95	74.00	-26.05			peak	
4		9534.000	46.37	1.84	48.21	74.00	-25.79			peak	
5	*	9772.000	45.95	2.99	48.94	74.00	-25.06	100	174	peak	
6		11183.000	43.34	4.72	48.06	74.00	-25.94			peak	

\*:Maximum data    x:Over limit    !:over margin

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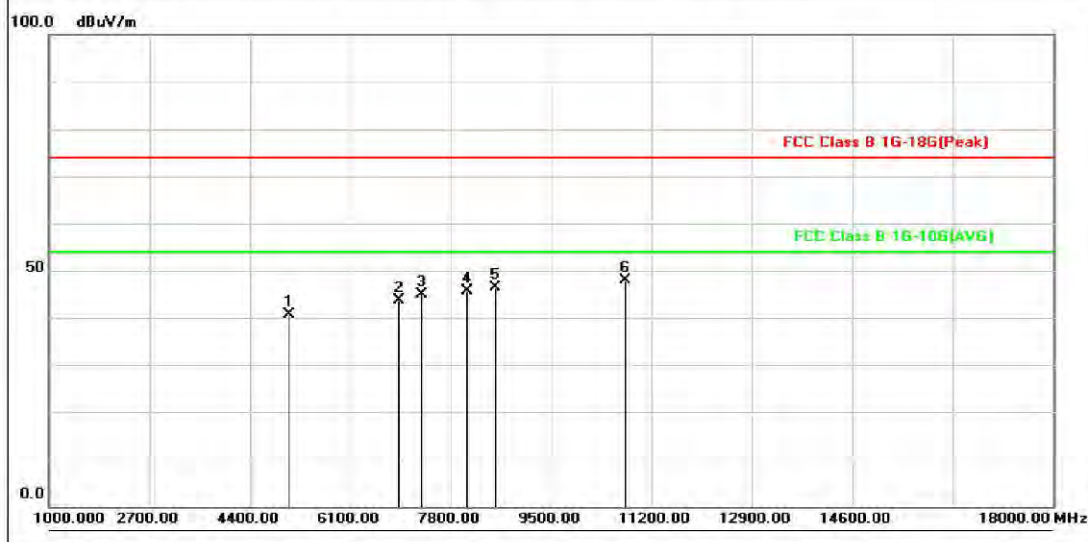
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## Config\_3\_V

Site: SGS 966 Chamber B	Date: 2019/12/29	Time: 上午 07:50:36
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 3	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: MP3		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		5063.000	45.87	-5.27	40.60	74.00	-33.40			peak	
2		6933.000	44.07	-0.35	43.72	74.00	-30.28			peak	
3		7307.000	43.79	1.20	44.99	74.00	-29.01			peak	
4		8089.000	43.40	2.27	45.67	74.00	-28.33			peak	
5		8565.000	45.42	0.87	46.29	74.00	-27.71			peak	
6	*	10758.000	43.10	4.88	47.98	74.00	-26.02	100	195	peak	

\*:Maximum data x:Over limit l:over margin

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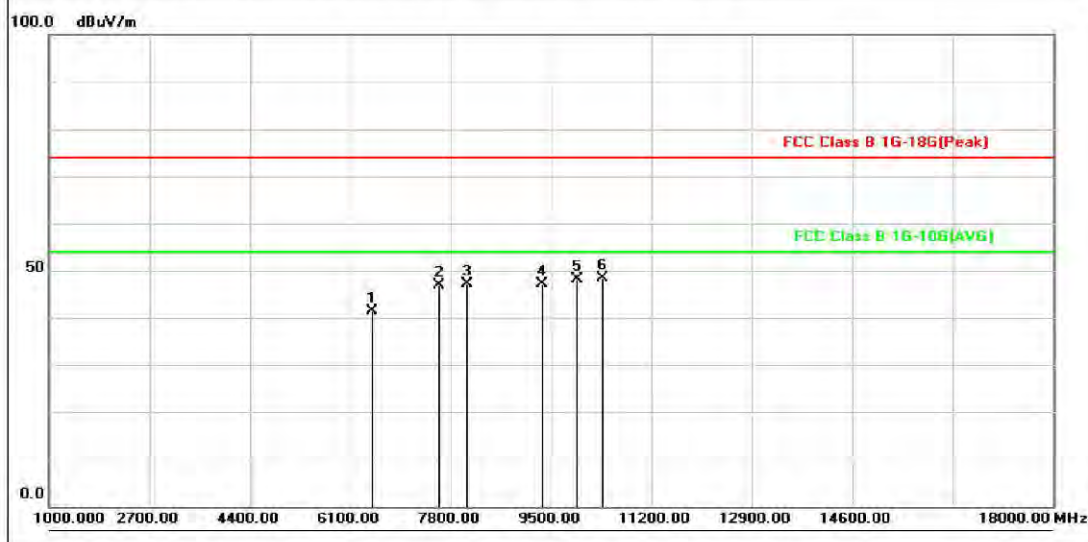




## Config\_4\_H

Site: SGS 966 Chamber B	Date: 2019/12/30	Time: 上午 10:27:20
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 66 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B05		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		6474.000	43.74	-2.35	41.39	74.00	-32.61			peak	
2		7596.000	45.63	1.26	46.89	74.00	-27.11			peak	
3		8072.000	44.84	2.35	47.19	74.00	-26.81			peak	
4		9347.000	45.33	1.85	47.18	74.00	-26.82			peak	
5		9942.000	44.81	3.42	48.23	74.00	-25.77			peak	
6	*	10367.000	44.46	4.02	48.48	74.00	-25.52	100	207	peak	

\*:Maximum data x:Over limit l:over margin

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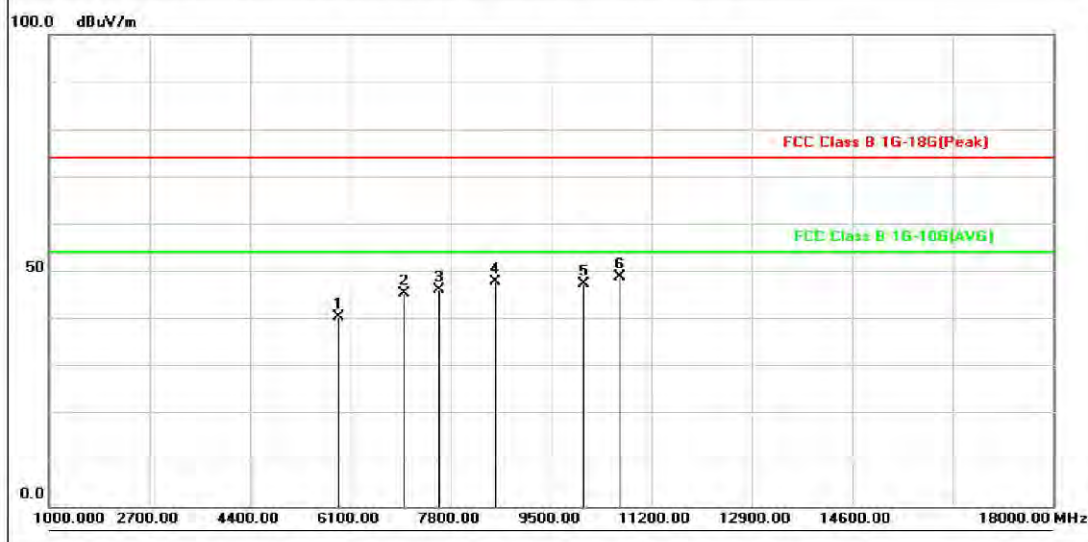
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## Config\_4\_V

Site: SGS 966 Chamber B	Date: 2019/12/30	Time: 上午 09:44:25
Limit: FCC Class B 1G-18G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 66 %
Report: MH-2019-C0119	Distance: 3m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B05		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory Address: No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		5913.000	44.78	-4.76	40.02	74.00	-33.98			peak	
2		7018.000	45.11	0.11	45.22	74.00	-28.78			peak	
3		7596.000	44.69	1.26	45.95	74.00	-28.05			peak	
4		8565.000	46.70	0.87	47.57	74.00	-26.43			peak	
5		10044.000	43.68	3.42	47.10	74.00	-26.90			peak	
6	*	10673.000	44.01	4.60	48.61	74.00	-25.39	100	174	peak	

\*:Maximum data x:Over limit l:over margin

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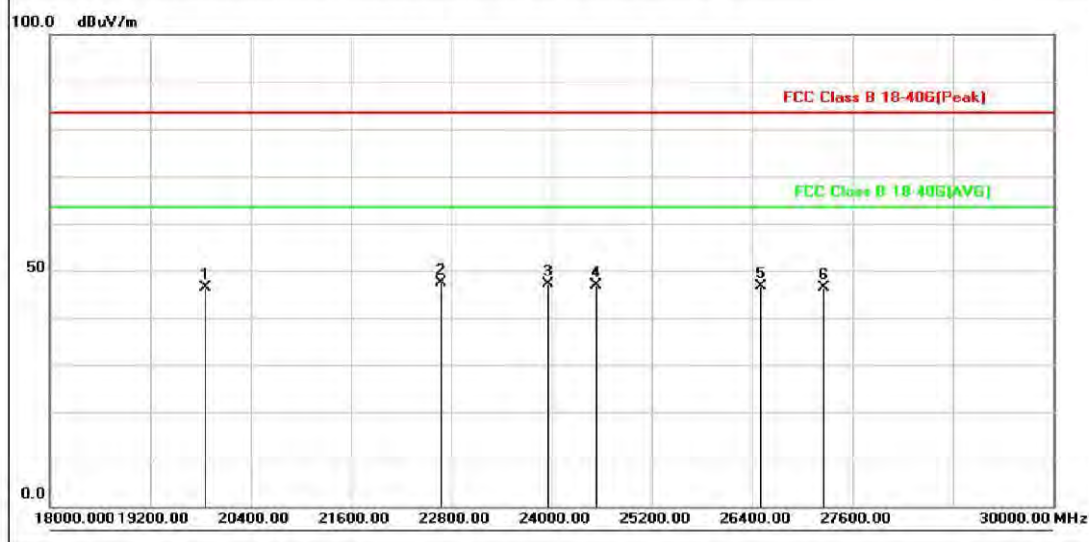


## 18GHz ~ 40GHz

## Config\_1\_H

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 01:51:11
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B02		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		19860.000	45.26	1.20	46.46	83.50	-37.04			peak	
2	*	22680.000	44.05	3.26	47.31	83.50	-36.19	100	124	peak	
3		23952.000	43.52	3.70	47.22	83.50	-36.28			peak	
4		24528.000	42.04	4.79	46.83	83.50	-36.67			peak	
5		26508.000	42.73	3.90	46.63	83.50	-36.87			peak	
6		27252.000	42.07	4.40	46.47	83.50	-37.03			peak	

\*:Maximum data    x:Over limit    !:over margin

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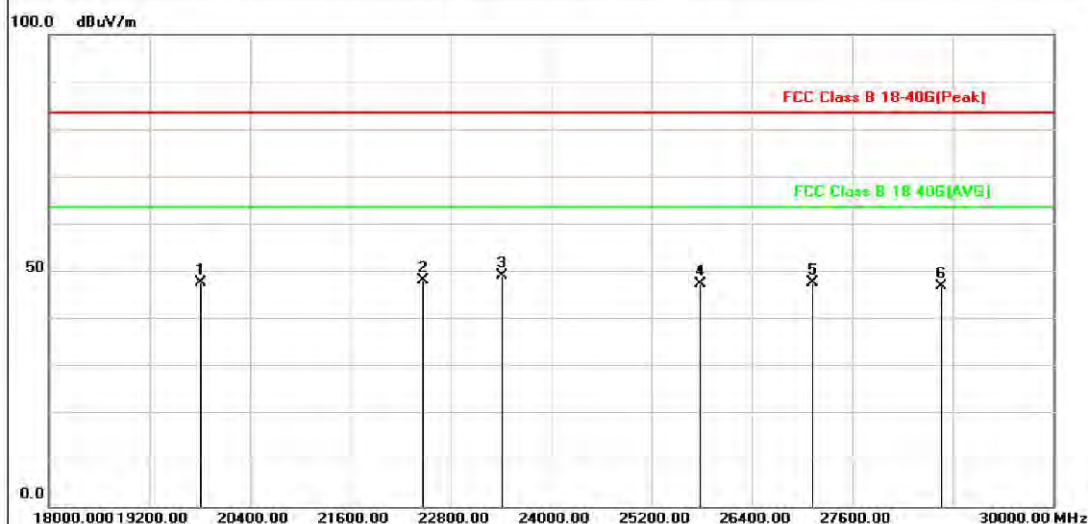
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## Config\_1\_V

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 01:20:35
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B02		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory- Address: No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		19812.000	46.15	1.13	47.28	83.50	-36.22			peak	
2		22464.000	44.67	3.23	47.90	83.50	-35.60			peak	
3	*	23412.000	45.31	3.61	48.92	83.50	-34.58	100	34	peak	
4		25776.000	42.99	4.22	47.21	83.50	-36.29			peak	
5		27132.000	43.12	4.21	47.33	83.50	-36.17			peak	
6		28668.000	43.18	3.57	46.75	83.50	-36.75			peak	

\*:Maximum data    x:Over limit    l:over margin

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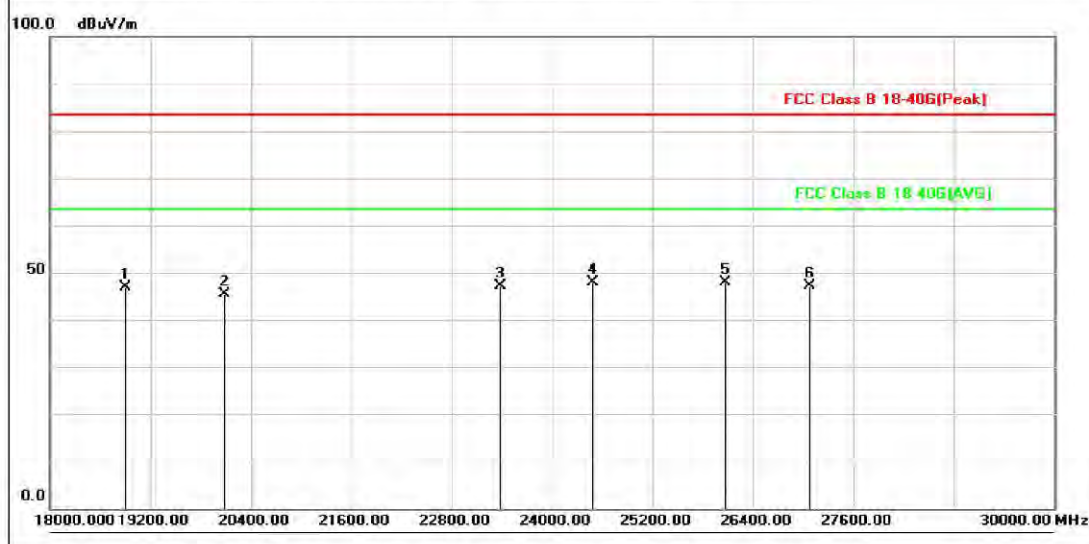




## Config\_2\_H

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 02:58:23
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 2	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: Data ExInternal Read		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory Address: No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		18900.000	47.35	-0.48	46.87	83.50	-36.63			peak	
2		20088.000	44.08	1.31	45.39	83.50	-38.11			peak	
3		23388.000	43.47	3.59	47.06	83.50	-36.44			peak	
4		24480.000	43.03	4.75	47.78	83.50	-35.72			peak	
5	*	26064.000	43.63	4.34	47.97	83.50	-35.53	100	167	peak	
6		27084.000	43.05	4.13	47.18	83.50	-36.32			peak	

\*:Maximum data x:Over limit l:over margin

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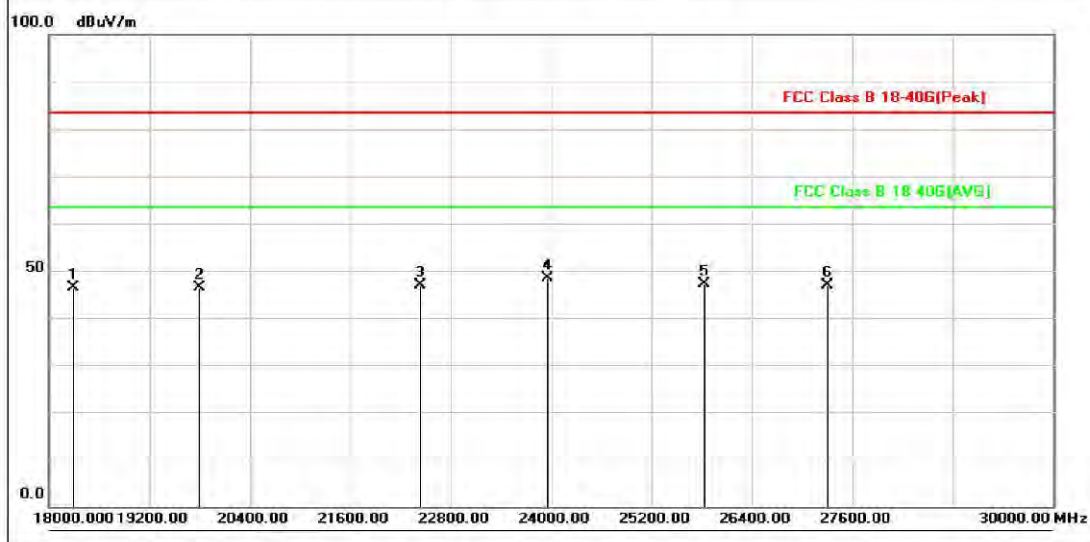
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## Config\_2\_V

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 02:31:17
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 2	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: Data ExInternal Read		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory- Address: No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		18300.000	46.88	-0.60	46.28	83.50	-37.22			peak	
2		19800.000	45.36	1.12	46.48	83.50	-37.02			peak	
3		22440.000	43.79	3.18	46.97	83.50	-36.53			peak	
4	*	23964.000	44.77	3.70	48.47	83.50	-35.03	100	28	peak	
5		25836.000	42.77	4.27	47.04	83.50	-36.46			peak	
6		27300.000	42.39	4.48	46.87	83.50	-36.63			peak	

\*:Maximum data    x:Over limit    l:over margin

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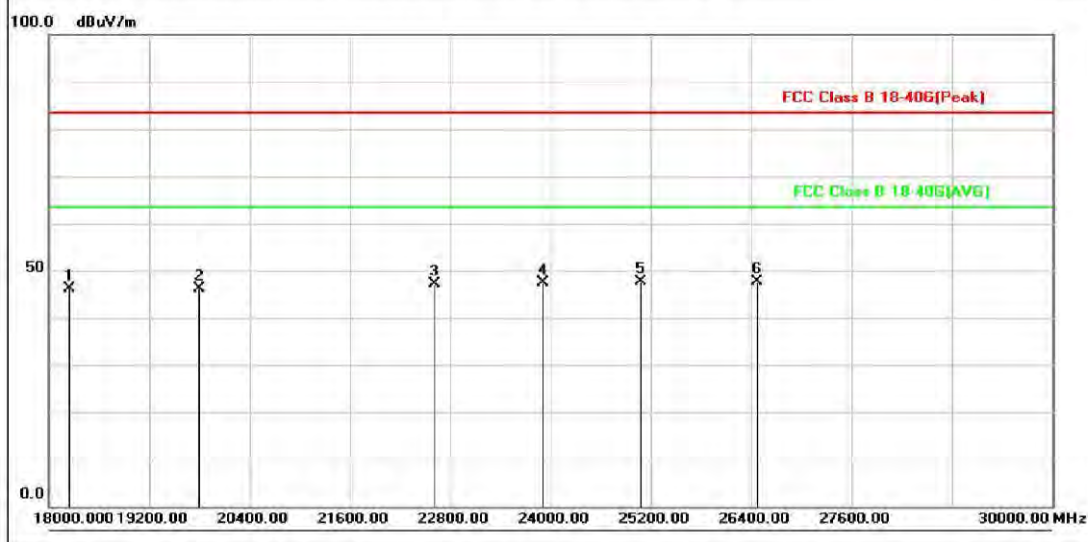
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## Config\_3\_H

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 03:53:34
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 3	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: MP3		

SGS Taiwan Ltd.-Electronics &amp; Communication Laboratory - Address: No.2, Kej 1st Rd., Guishan District, Taoyuan City, Taiwan 333



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		18252.000	46.67	-0.55	46.12	83.50	-37.38			peak	
2		19800.000	45.10	1.12	46.22	83.50	-37.28			peak	
3		22620.000	43.96	3.28	47.24	83.50	-36.26			peak	
4		23916.000	43.76	3.70	47.46	83.50	-36.04			peak	
5	*	25080.000	43.24	4.41	47.65	83.50	-35.85	100	184	peak	
6		26472.000	43.59	3.93	47.52	83.50	-35.98			peak	

\*:Maximum data x:Over limit !:over margin

Page: 1

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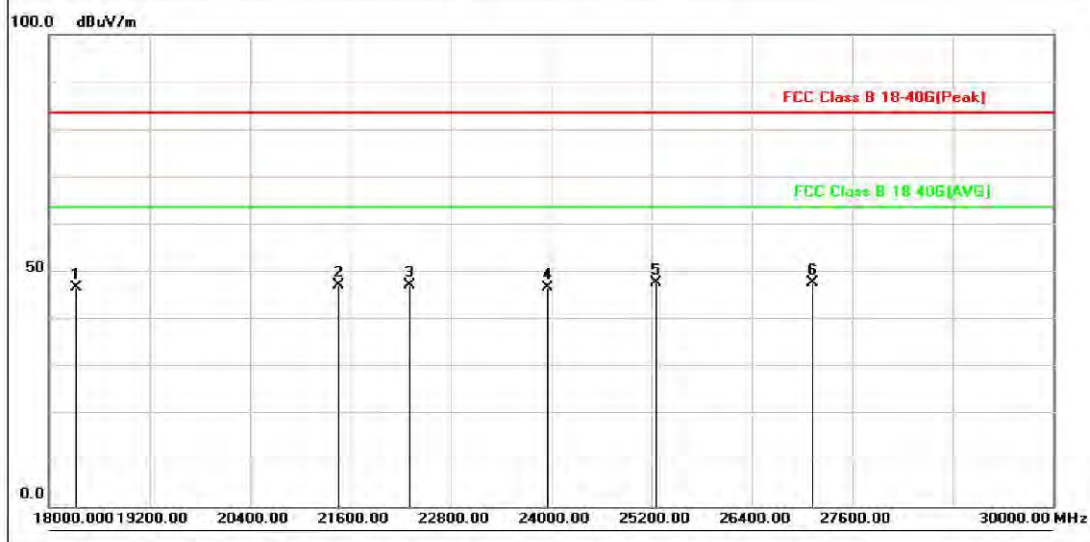
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## Config\_3\_V

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 03:21:28
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 3	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: MP3		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		18324.000	47.07	-0.63	46.44	83.50	-37.06			peak	
2		21456.000	44.42	2.35	46.77	83.50	-36.73			peak	
3		22308.000	43.94	2.91	46.85	83.50	-36.65			peak	
4		23952.000	42.72	3.70	46.42	83.50	-37.08			peak	
5		25248.000	43.16	4.25	47.41	83.50	-36.09			peak	
6	*	27132.000	43.22	4.21	47.43	83.50	-36.07	100	136	peak	

\*:Maximum data    x:Over limit    l:over margin

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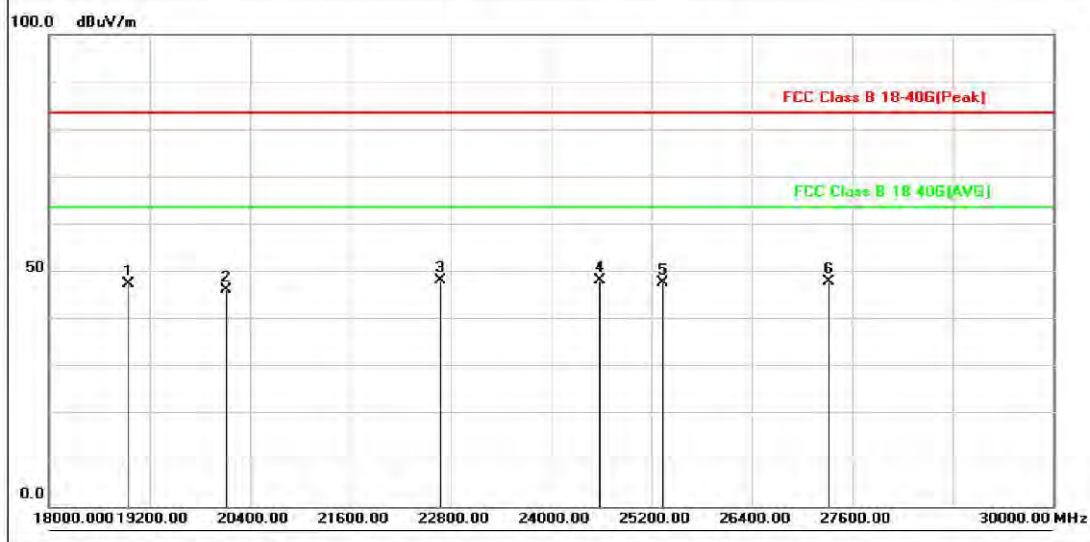




## Config\_4\_H

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 05:13:45
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Horizontal</b>	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B05		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		18948.000	47.55	-0.44	47.11	83.50	-36.39			peak	
2		20124.000	44.64	1.28	45.92	83.50	-37.58			peak	
3	*	22680.000	44.68	3.26	47.94	83.50	-35.56	100	210	peak	
4		24576.000	43.18	4.76	47.94	83.50	-35.56			peak	
5		25332.000	43.09	4.17	47.26	83.50	-36.24			peak	
6		27312.000	43.02	4.50	47.52	83.50	-35.98			peak	

\*:Maximum data x:Over limit l:over margin

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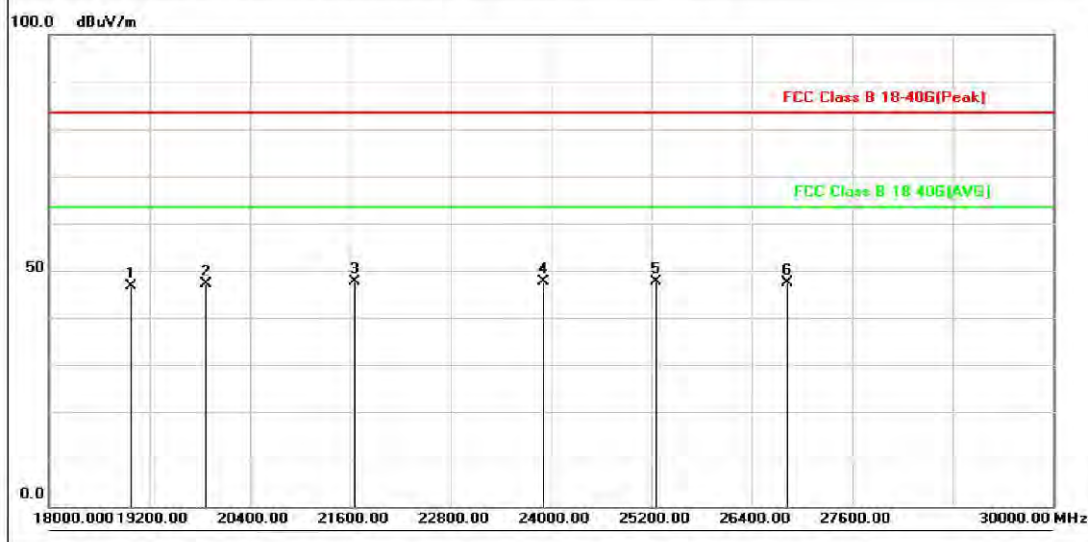
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## Config\_4\_V

Site: SGS 966 Chamber B	Date: 2020/1/6	Time: 下午 04:31:40
Limit: FCC Class B 18-40G(Peak)	Polarization: <b>Vertical</b>	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 64 %
Report: MH-2019-C0119	Distance: 1m	Air Pressure: 990 hpa
Tester: Ken Chen		
Note: LTE B05		

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No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Height (cm)	Degree (deg.)	Detector	Comment
1		18984.000	47.04	-0.41	46.63	83.50	-36.87			peak	
2		19872.000	46.02	1.23	47.25	83.50	-36.25			peak	
3		21660.000	45.25	2.37	47.62	83.50	-35.88			peak	
4		23916.000	43.88	3.70	47.58	83.50	-35.92			peak	
5	*	25260.000	43.39	4.24	47.63	83.50	-35.87	100	148	peak	
6		26820.000	43.38	3.96	47.34	83.50	-36.16			peak	

\*:Maximum data    x:Over limit    !:over margin

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