

FCC CERTIFICATION REPORT

Test Report No. : MH/2019/A0118
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 Receipt : Oct. 24, 2019
Date of Test : Nov. 04 ~ 19, 2019
Date of Issue : Nov. 20, 2019

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

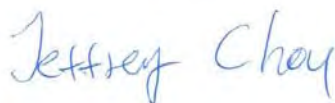
Remarks :

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:

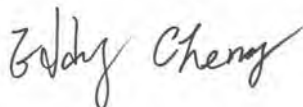


Date

Nov. 20, 2019

Jeffrey Chou (Engineer)

Approved By



Date

Nov. 20, 2019

Eddy Cheng (Asst. Supervisor)



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Revision History

Revision	Description	Issue Date	Remark
00	Original.	Nov. 20, 2019	MH/2019/A0118

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Contents

1. GENERAL INFORMATION	4
1.1 APPLICANT & MANUFACTURER INFORMATION	4
1.2 GENERAL DESCRIPTION OF EUT	4
1.3 DETAILS OF EUT	4
1.4 OPERATION PROCEDURE	6
1.5 DESCRIPTION OF SUPPORT UNITS	7
1.6 MODIFICATION LIST	7
1.7 ACCESSORIES CABLE LIST	7
1.8 TEST SET-UP CONFIGURATION	8
1.9 MEASUREMENT PROCEDURE	9
1.10 STANDARDS APPLICABLE FOR TESTING	9
1.11 SUMMARY OF RESULTS	9
2. EMISSION	10
2.1 TEST RESULTS	10
2.2 FREQUENCY RANGE	10
2.3 LIMITS OF CONDUCTED AND RADIATED EMISSION	10
2.3.1 LIMITS OF CONDUCTED EMISSION	10
2.3.2 LIMITS OF RADIATED EMISSIONS	11
2.4. TEST OF CONDUCTED EMISSION	12
2.4.1 TEST EQUIPMENTS	12
2.4.2 OPERATING ENVIRONMENT	12
2.4.3 MEASUREMENT LEVEL CALCULATION	12
2.4.4 MEASUREMENT DATA:	13
2.5 TEST OF RADIATED EMISSION	19
2.5.1 TEST EQUIPMENTS	19
2.5.2 OPERATING ENVIRONMENT	20
2.5.3 MEASUREMENT LEVEL CALCULATION	20
2.5.4 MEASUREMENT DATA:	21
3. PHOTOGRAPHS OF TEST	45

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1. General Information

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 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, 3130mAh, 12.05Wh
 Worst case : CE worst case : Config 4
 Below RE worst case : Config 2
 Above RE worst case : Config 3

FCC ID : APYHRO00279	UFS memory	LPDDR4X SDRAM	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 B	Vendor B	Vendor B	Vendor B	V
3rd Source	Vendor B	Vendor C	Vendor B	Vendor B	V

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Accessories List: AC Charger : Salom/XN-2QC25 Data Cable : Luxshare-ICT/L6KU2007-CS-H Conversion Cable : Partron/RUITZA533AFZZ PHF : Sony / MDR-EX15AP	Config 1	Config 2	Config 3	Config 4
Applicable standard	FCC 15B			
Accessories	EUT + AC Adaptor +USB Cable	EUT +USB Cable	EUT +Conversion Cable +PHF	EUT + AC Adaptor +USB Cable
Main function	Speech	Data Link	Camera	RX Receive
Additional function	BT+WiFi+GPS+NFC			
Description				
radiated emission	GSM 850, 1900 WCDMA BII, IV, V LTE B02, 04, 05, 12, 13, 17	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, IV, V LTE B02, 04, 05, 12, 13, 17	Data R/W	NA	GSM 850 WCDMA BV LTE B05

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1.4 Operation Procedure

Config 1

1. Let EUT install with SIM card, connect to the specified Adapter 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. 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, 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, connect to Conversion Cable to switch to Earphone 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. Perform Camera (Front/Back) Record / Play REC / MP3 function according to Config.
7. Start testing.

Config 4

1. Let EUT install with SIM card, connect to the specified Adapter 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. Set up the base station and set the link 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
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	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	1.8m	Shielding
USB Cable	N/A	1.2m	Shielding
USB Conversion Cable	N/A	0.13M	Non-shielding
Earphone	N/A	1.2M	Non-shielding

1.6 Modification List

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

1.7 Accessories Cable List

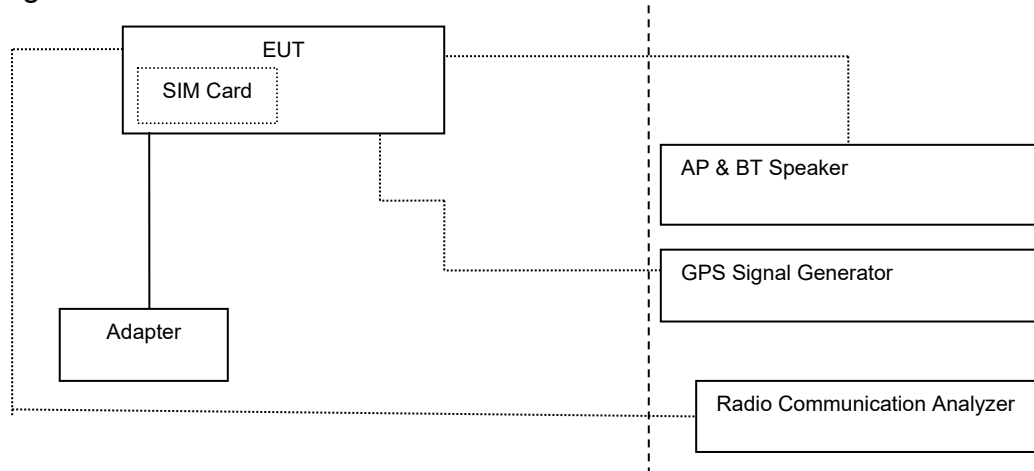
Cable Type	Core	Length	Shielding/Non-shielding
N/A	N/A	N/A	N/A

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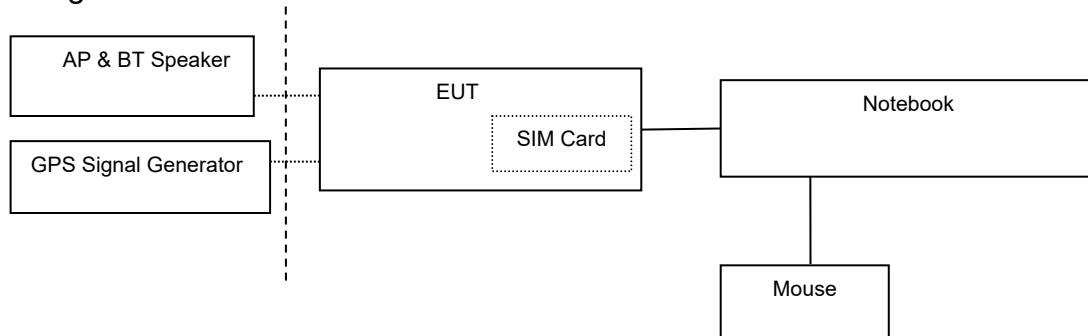
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1.8 Test Set-Up Configuration

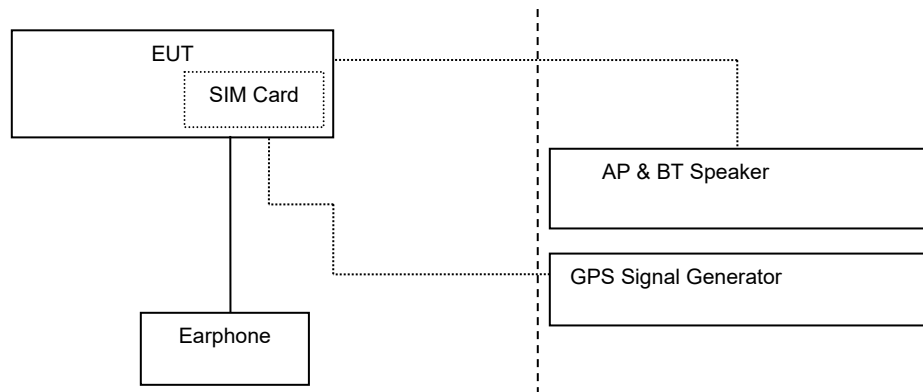
Config 1 & 4



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	0.1860	-14.08 (QP)
			Neutral	0.1860	-17.04 (QP)
	Radiated Emission	PASS	Hor.	58.3700	-3.10 (QP)

1.13 Reporting Statements of Conformity

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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
LISN	Schwarzbeck	NSLK 8127	8127-648	2019/7/12	2020/7/11
Pulse Limiter	Narda S.T.S.	PMM PL01	1110X30602	2019/8/12	2020/8/11
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	N.C.R.	N.C.R.

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 No.2, Keji 1st Rd., Guishan District, Taoyuan City 33383, Taiwan (R.O.C.)
 Measurement Uncertainty of Conducted Emission
 Expanded uncertainty Ulab(K=2) of conducted emission is 2.25 dB
 Theory values uncertainty Ucispr 16-4-2 :2011+A1 2014 (K=2) of AC mains conducted Emission is 3.44dB

2.4.2 Operating Environment

Temperature : 19 degree C

Humidity : 68 %RH

Atmospheric Pressure : 1015 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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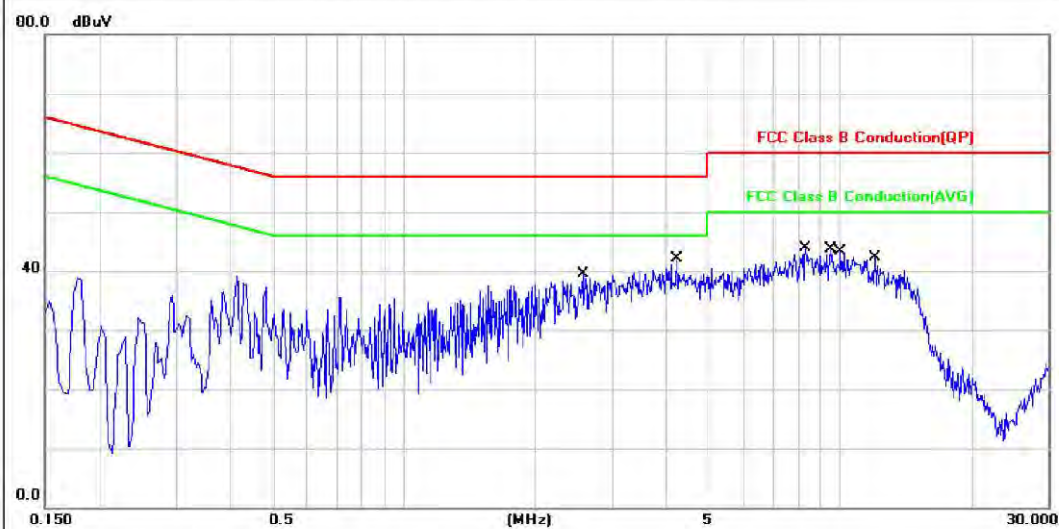


2.4.4 Measurement Data:

Config_1_L

Site: Conduction Room A	Date: 2019/11/6	Time: 下午 07:19:53
Limit: FCC Class B Conduction(QP)	Phase: L1	Temperature: 19 °C
Mode: Config_1	Power: AC120V/60Hz	Humidity: 73 %
Report: MH-2019-A0118		Air Pressure: 1013 hpa
Tester:		
Note: LTE B2		

SGS Taiwan Ltd.-Electronics & Communication Laboratory Address: No.2, K'oji 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		2.5900	31.49	0.27	31.76	56.00	-24.24	QP	
2		2.5900	21.21	0.27	21.48	46.00	-24.52	AVG	
3		4.2260	31.10	0.32	31.42	56.00	-24.58	QP	
4	*	4.2260	22.71	0.32	23.03	46.00	-22.97	AVG	
5		8.3660	33.98	0.46	34.44	60.00	-25.56	QP	
6		8.3660	24.14	0.46	24.60	50.00	-25.40	AVG	
7		9.5100	33.31	0.49	33.80	60.00	-26.20	QP	
8		9.5100	23.83	0.49	24.32	50.00	-25.68	AVG	
9		10.0500	33.81	0.51	34.32	60.00	-25.68	QP	
10		10.0500	24.10	0.51	24.61	50.00	-25.39	AVG	
11		12.0060	32.15	0.59	32.74	60.00	-27.26	QP	
12		12.0060	22.50	0.59	23.09	50.00	-26.91	AVG	

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

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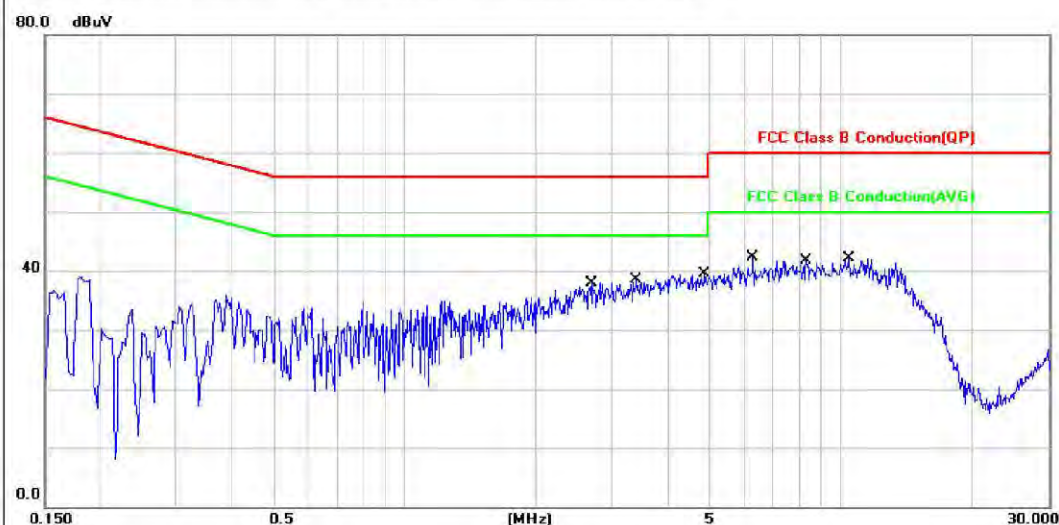
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Config_1_N

Site: : Conduction Room A	Date: 2019/11/6	Time: 下午 07:21:53
Limit: FCC Class B Conduction(QP)	Phase: N	Temperature: 19 °C
Mode: Config_1	Power: AC120V/60Hz	Humidity: 73 %
Report: MH-2019-A0118		Air Pressure: 1013 hpa
Tester:		
Note: LTE B2		

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



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		2.6980	29.27	0.25	29.52	56.00	-26.48	QP	
2		2.6980	19.90	0.25	20.15	46.00	-25.85	AVG	
3		3.4020	29.52	0.26	29.78	56.00	-26.22	QP	
4		3.4020	20.68	0.26	20.94	46.00	-25.06	AVG	
5		4.8820	31.08	0.29	31.37	56.00	-24.63	QP	
6	*	4.8820	21.88	0.29	22.17	46.00	-23.83	AVG	
7		6.3060	30.27	0.31	30.58	60.00	-29.42	QP	
8		6.3060	22.30	0.31	22.61	50.00	-27.39	AVG	
9		8.3340	32.14	0.35	32.49	60.00	-27.51	QP	
10		8.3340	23.22	0.35	23.57	50.00	-26.43	AVG	
11		10.4220	31.28	0.38	31.66	60.00	-28.34	QP	
12		10.4220	22.61	0.38	22.99	50.00	-27.01	AVG	

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Config_2_L

Site: : Conduction Room A	Date: 2019/11/7	Time: 上午 10:38:51
Limit: FCC Class B Conduction(QP)	Phase: L1	Temperature: 19 °C
Mode: Config_2	Power: AC120V/60Hz	Humidity: 68 %
Report: MH-2019-A0118		Air Pressure: 1015 hpa
Tester:		
Note: Read		

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



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		0.1540	47.77	0.04	47.81	65.78	-17.97	QP	
2		0.1540	19.17	0.04	19.21	55.78	-36.57	AVG	
3	*	0.1740	48.04	0.08	48.12	64.77	-16.65	QP	
4		0.1740	37.78	0.08	37.86	54.77	-16.91	AVG	
5		0.2020	38.79	0.13	38.92	63.53	-24.61	QP	
6		0.2020	14.39	0.13	14.52	53.53	-39.01	AVG	
7		0.2220	38.78	0.13	38.91	62.74	-23.83	QP	
8		0.2220	23.49	0.13	23.62	52.74	-29.12	AVG	
9		0.2460	37.26	0.13	37.39	61.89	-24.50	QP	
10		0.2460	14.84	0.13	14.97	51.89	-36.92	AVG	
11		0.2700	33.96	0.13	34.09	61.12	-27.03	QP	
12		0.2700	14.87	0.13	15.00	51.12	-36.12	AVG	

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

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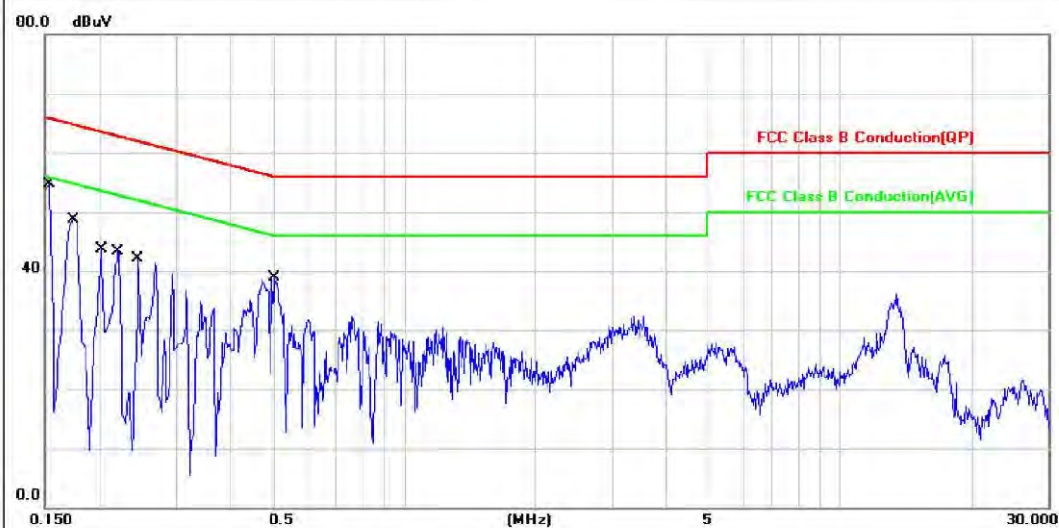
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Config_2_N

Site: Conduction Room A	Date: 2019/11/7	Time: 上午 10:41:04
Limit: FCC Class B Conduction(QP)	Phase: N	Temperature: 19 °C
Mode: Config_2	Power: AC120V/60Hz	Humidity: 68 %
Report: MH-2019-A0118		Air Pressure: 1015 hpa
Tester:		
Note: Read		

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No.	Mk	Freq. (MHz)	Reading (dBμV)	Factor (dB)	Measurement (dBμV)	Limit (dBμV)	Over (dB)	Detector	Comment
1		0.1540	44.96	0.03	44.99	65.78	-20.79	QP	
2		0.1540	17.34	0.03	17.37	55.78	-38.41	AVG	
3		0.1740	47.44	0.07	47.51	64.77	-17.26	QP	
4	*	0.1740	37.50	0.07	37.57	54.77	-17.20	AVG	
5		0.2020	41.25	0.11	41.36	63.53	-22.17	QP	
6		0.2020	15.76	0.11	15.87	53.53	-37.66	AVG	
7		0.2220	39.32	0.11	39.43	62.74	-23.31	QP	
8		0.2220	23.67	0.11	23.78	52.74	-28.96	AVG	
9		0.2460	36.64	0.11	36.75	61.89	-25.14	QP	
10		0.2460	14.87	0.11	14.98	51.89	-36.91	AVG	
11		0.5060	37.61	0.11	37.72	56.00	-18.28	QP	
12		0.5060	27.42	0.11	27.53	46.00	-18.47	AVG	

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

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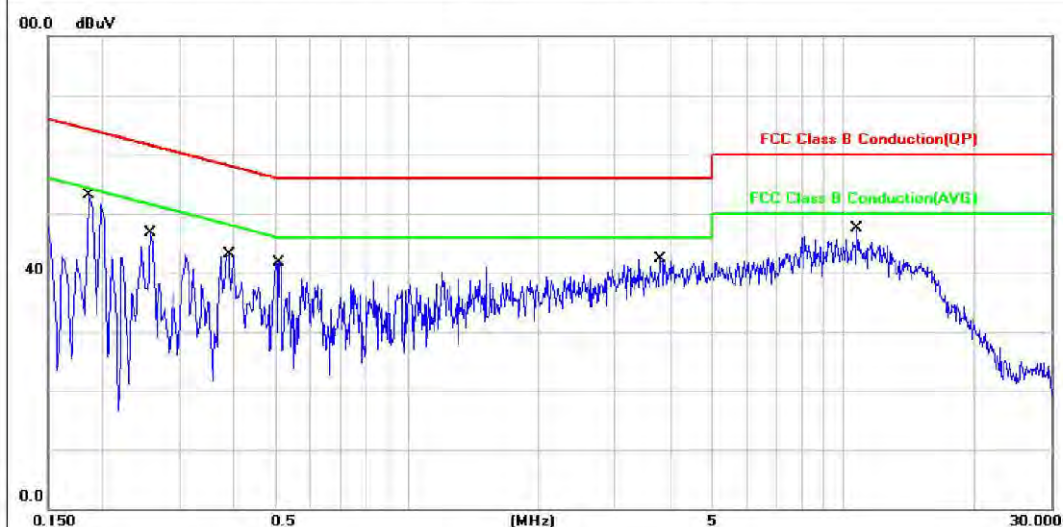
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Config_4_L

Site: Conduction Room A	Date: 2019/11/19	Time: 下午 05:49:28
Limit: FCC Class B Conduction(QP)	Phase: L1	Temperature: 21 °C
Mode: Config_4	Power: AC120V/60Hz	Humidity: 62 %
Report: File :MH-2019-A0118		Air Pressure: 1021 hpa
Tester:		
Note: GSM 850		

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



No.	Mk	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.1860	50.03	0.10	50.13	64.21	-14.08	QP	
2		0.1860	34.64	0.10	34.74	54.21	-19.47	AVG	
3		0.2580	43.62	0.13	43.75	61.50	-17.75	QP	
4		0.2580	28.84	0.13	28.97	51.50	-22.53	AVG	
5		0.3900	38.25	0.13	38.38	58.06	-19.68	QP	
6		0.3900	27.46	0.13	27.59	48.06	-20.47	AVG	
7		0.5100	38.58	0.13	38.71	56.00	-17.29	QP	
8		0.5100	27.82	0.13	27.95	46.00	-18.05	AVG	
9		3.8140	35.80	0.31	36.11	56.00	-19.89	QP	
10		3.8140	25.99	0.31	26.30	46.00	-19.70	AVG	
11		10.7460	37.73	0.54	38.27	60.00	-21.73	QP	
12		10.7460	27.19	0.54	27.73	50.00	-22.27	AVG	

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

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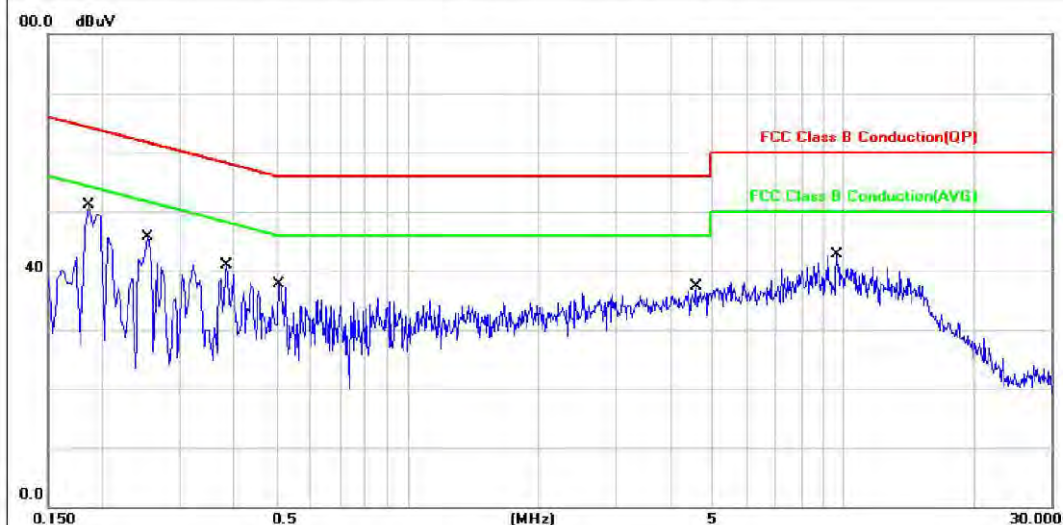
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Config_4_N

Site: Conduction Room A	Date: 2019/11/19	Time: 下午 05:51:42
Limit: FCC Class B Conduction(QP)	Phase: N	Temperature: 21 °C
Mode: Config_4	Power: AC120V/60Hz	Humidity: 62 %
Report: File :MH-2019-A0118		Air Pressure: 1021 hpa
Tester:		
Note: GSM 850		

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)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.1860	47.09	0.08	47.17	64.21	-17.04	QP	
2		0.1860	32.05	0.08	32.13	54.21	-22.08	AVG	
3		0.2540	41.27	0.11	41.38	61.63	-20.25	QP	
4		0.2540	26.96	0.11	27.07	51.63	-24.56	AVG	
5		0.3860	36.66	0.11	36.77	58.15	-21.38	QP	
6		0.3860	26.21	0.11	26.32	48.15	-21.83	AVG	
7		0.5100	33.64	0.11	33.75	56.00	-22.25	QP	
8		0.5100	24.42	0.11	24.53	46.00	-21.47	AVG	
9		4.5980	30.28	0.28	30.56	56.00	-25.44	QP	
10		4.5980	21.64	0.28	21.92	46.00	-24.08	AVG	
11		9.6860	31.75	0.37	32.12	60.00	-27.88	QP	
12		9.6860	23.45	0.37	23.82	50.00	-26.18	AVG	

*:Maximum data x:Over limit l: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	100924	2019/2/1	2020/1/31
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	MF-7802	N/A	N.C.R.	N.C.R.
Controller	MF	MF-7802	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	Chance Most	10M Chamber	10M SAC	2018/12/31	2019/12/30
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	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 Radiated Emission
 Expanded uncertainty U_{lab} (K=2) of radiated emission is 4.09 dB. (30MHz ~ 1000MHz)
 Theory values uncertainty U_{cispr} 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 966A 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	101459	2019/2/25	2020/2/24
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA9120D673	2019/11/4	2020/11/3
Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170-184	2018/12/27	2019/12/26
Pre Amplifier	EMC Instruments Corp.	EMC012645B	980216	2019/4/25	2020/4/24
Pre Amplifier	EMC Instruments Corp.	EMC184045B	980135	2019/10/27	2020/10/26
Coaxial Cable	JUNFLOW	MWX221-NMSNMS	J0778929	2019/4/23	2020/4/22
Coaxial Cable	Huber+Suhner	SUCCOFLEX 104PEA	30255/4PEA	2019/4/23	2020/4/22
Coaxial Cable	EMC Instruments	EMC104-SM-SM	140927	2019/4/23	2020/4/22
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	MF-7802	N.C.R.	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 A	SAC-A	2019/1/12	2020/1/11
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	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 Radiated Emission
 Expanded uncertainty (k=2) of radiated emission measurement is 5.05 dB. (1-6GHz)
 Expanded uncertainty (k=2) of radiated emission measurement is 5.07 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 : 21 degree C

Humidity : 67 %RH

Atmospheric Pressure : 1014 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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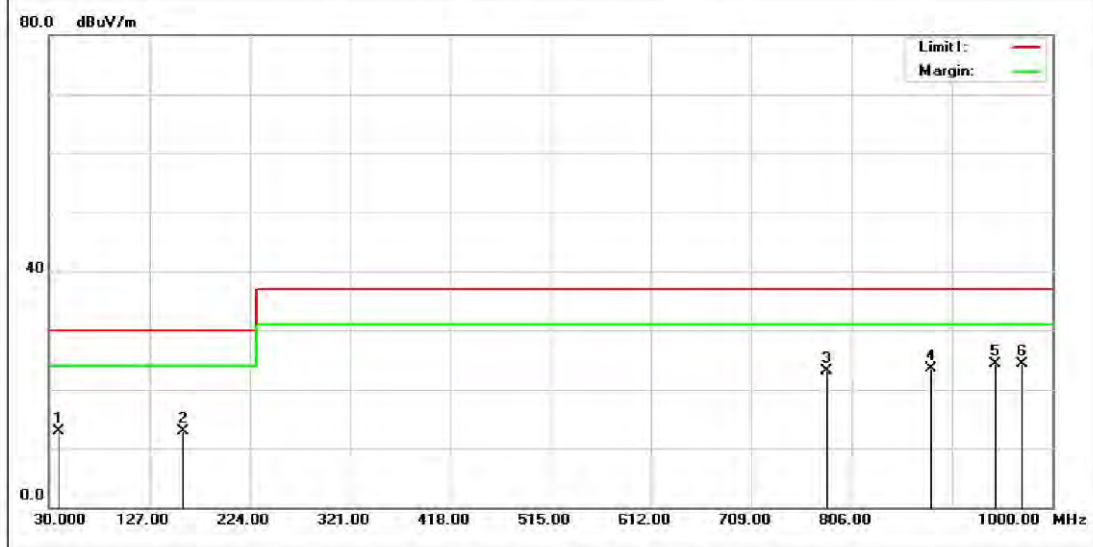
2.5.4 Measurement Data

Below 1GHz

Config_1_H

Site: SGS 10m Chamber	Date: 2019/11/4	Time: 下午 10:47:21
Limit: CISPR22 Class B 10m Radiation	Polarization: Horizontal	Temperature: 21 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 67 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1014 hpa
Tester:		
Note: WCDMA BIV		

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		39.7000	24.34	-11.40	12.94	30.00	-17.06			QP	
2		159.9800	23.74	-10.80	12.94	30.00	-17.06			QP	
3		781.7500	22.92	0.28	23.20	37.00	-13.80			QP	
4		882.6300	23.09	0.45	23.54	37.00	-13.46			QP	
5		944.7100	22.82	1.47	24.29	37.00	-12.71			QP	
6	*	970.9000	22.81	1.58	24.39	37.00	-12.61	199	264	QP	

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

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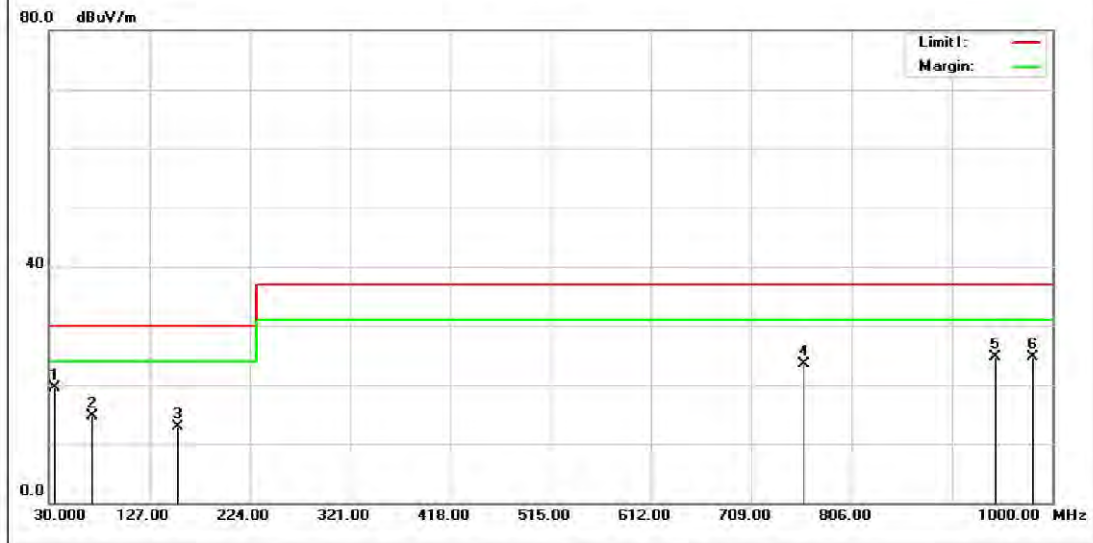
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Config_1_V

Site: SGS 10m Chamber	Date: 2019/11/4	Time: 下午 10:47:20
Limit: CISPR22 Class B 10m Radiation	Polarization: Vertical	Temperature: 21 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 67 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1014 hpa
Tester:		
Note: WCDMA BIV		

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	*	35.8200	31.32	-11.78	19.54	30.00	-10.46	300	360	QP	
2		71.7100	27.85	-13.09	14.76	30.00	-15.24			QP	
3		154.1600	23.62	-10.77	12.85	30.00	-17.15			QP	
4		759.4400	22.15	1.28	23.43	37.00	-13.57			QP	
5		944.7100	22.29	2.48	24.77	37.00	-12.23			QP	
6		980.6000	21.97	2.69	24.66	37.00	-12.34			QP	

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

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Config_2_H

Site: SGS 10m Chamber	Date: 2019/11/5	Time: 上午 03:52:25
Limit: CISPR22 Class B 10m Radiation	Polarization: Horizontal	Temperature: 21 °C
Mode: Config 2	Power: From System	Humidity: 67 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1014 hpa
Tester:		
Note: Data Read		

SGS Taiwan Ltd.-Electronics & 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	*	58.3700	38.56	-11.66	26.90	30.00	-3.10	399	358	QP	
2	!	165.2100	37.61	-11.30	26.31	30.00	-3.69			QP	
3		205.8100	36.71	-14.72	21.99	30.00	-8.01			QP	
4		765.2600	23.18	0.32	23.50	37.00	-13.50			QP	
5		954.4100	22.92	1.50	24.42	37.00	-12.58			QP	
6		998.0600	22.84	1.66	24.50	37.00	-12.50			QP	

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

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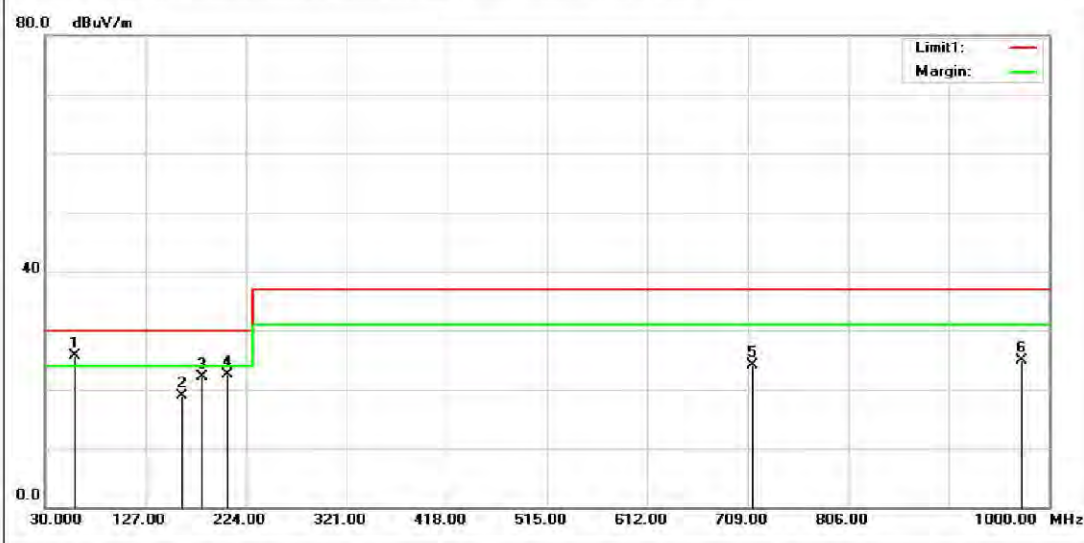
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Config_2_V

Site: SGS 10m Chamber	Date: 2019/11/5	Time: 上午 03:52:24
Limit: CISPR22 Class B 10m Radiation	Polarization: Vertical	Temperature: 21 °C
Mode: Config 2	Power: From System	Humidity: 67 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1014 hpa
Tester:		
Note: Data Read		

SGS Taiwan Ltd.-Electronics & Communication Laboratory Address: No.2, Kej 1st Rd., Qishan 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	*	58.3500	37.31	-11.51	25.80	30.00	-4.20	100	301	QP	
2		162.8000	29.52	-10.57	18.95	30.00	-11.05			QP	
3		181.2300	34.72	-12.63	22.09	30.00	-7.91			QP	
4		205.8500	36.53	-14.00	22.53	30.00	-7.47			QP	
5		713.8500	24.19	-0.11	24.08	37.00	-12.92			QP	
6		972.8400	22.22	2.61	24.83	37.00	-12.17			QP	

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

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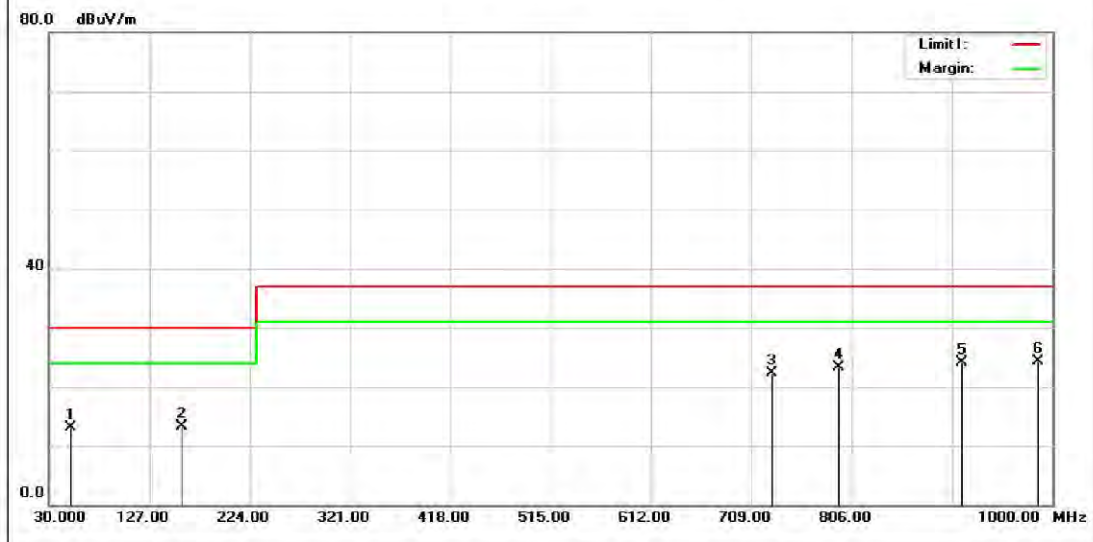
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Config_3_H

Site: SGS 10m Chamber	Date: 2019/11/5	Time: 上午 12:17:22
Limit: CISPR22 Class B 10m Radiation	Polarization: Horizontal	Temperature: 21 °C
Mode: Config 3	Power: From Battery	Humidity: 67 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1014 hpa
Tester:		
Note: MP3		

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		51.3400	24.14	-11.12	13.02	30.00	-16.98			QP	
2		159.0100	24.03	-10.75	13.28	30.00	-16.72			QP	
3		729.3700	22.87	-0.49	22.38	37.00	-14.62			QP	
4		793.3900	23.09	0.14	23.23	37.00	-13.77			QP	
5		912.7000	23.14	0.97	24.11	37.00	-12.89			QP	
6	*	986.4200	22.77	1.63	24.40	37.00	-12.60	300	129	QP	

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

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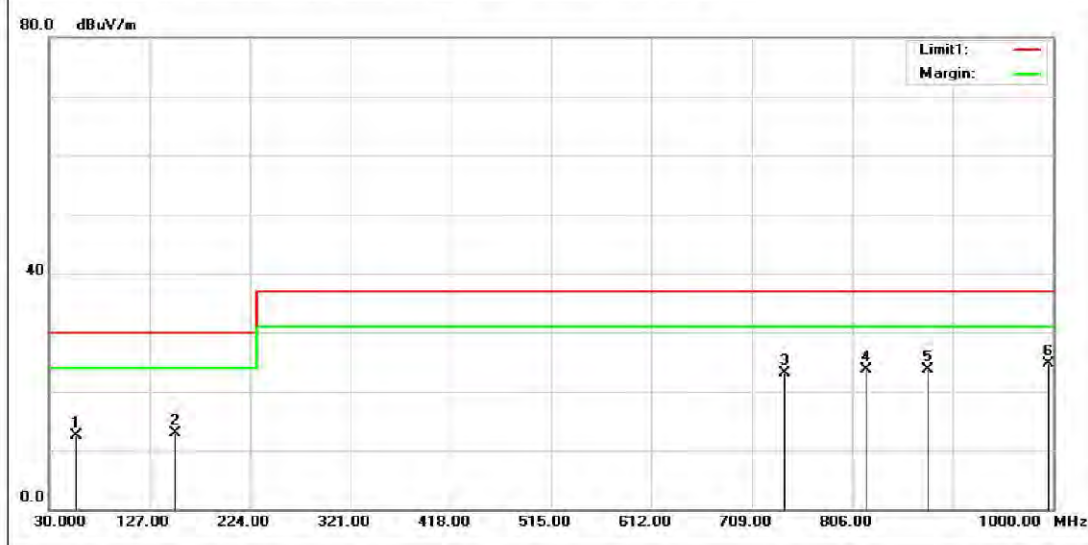
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Config_3_V

Site: SGS 10m Chamber	Date: 2019/11/5	Time: 上午 12:17:21
Limit: CISPR22 Class B 10m Radiation	Polarization: Vertical	Temperature: 21 °C
Mode: Config 3	Power: From Battery	Humidity: 67 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1014 hpa
Tester:		
Note: MP3		

SGS Taiwan Ltd.-Electronics & Communication Laboratory Address: No.2, Key 1st Rd., Quishan 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		56.1900	23.66	-11.16	12.50	30.00	-17.50			QP	
2		152.2200	23.72	-10.91	12.81	30.00	-17.19			QP	
3		740.0400	22.16	1.02	23.18	37.00	-13.82			QP	
4		819.5800	22.12	1.58	23.70	37.00	-13.30			QP	
5		878.7500	22.14	1.54	23.68	37.00	-13.32			QP	
6	*	995.1500	22.04	2.60	24.64	37.00	-12.36	200	133	QP	

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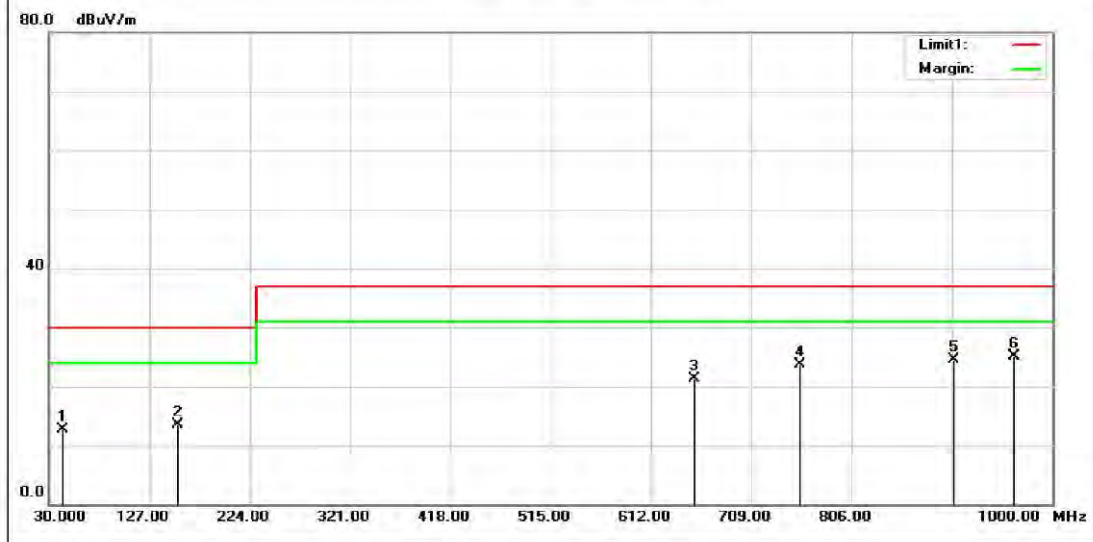
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Config_4_H

Site: SGS 10m Chamber	Date: 2019/11/19	Time: 下午 10:28:20
Limit: CISPR22 Class B 10m Radiation	Polarization: Horizontal	Temperature: 20 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 65 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1012 hpa
Tester:		
Note: LTE B05		

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		43.5800	23.89	-11.17	12.72	30.00	-17.28			QP	
2		155.1300	24.44	-10.95	13.49	30.00	-16.51			QP	
3		653.7100	23.63	-2.31	21.32	37.00	-15.68			QP	
4		756.5300	23.54	0.22	23.76	37.00	-13.24			QP	
5		904.9400	23.82	0.71	24.53	37.00	-12.47			QP	
6	*	963.1400	23.61	1.54	25.15	37.00	-11.85	301	216	QP	

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

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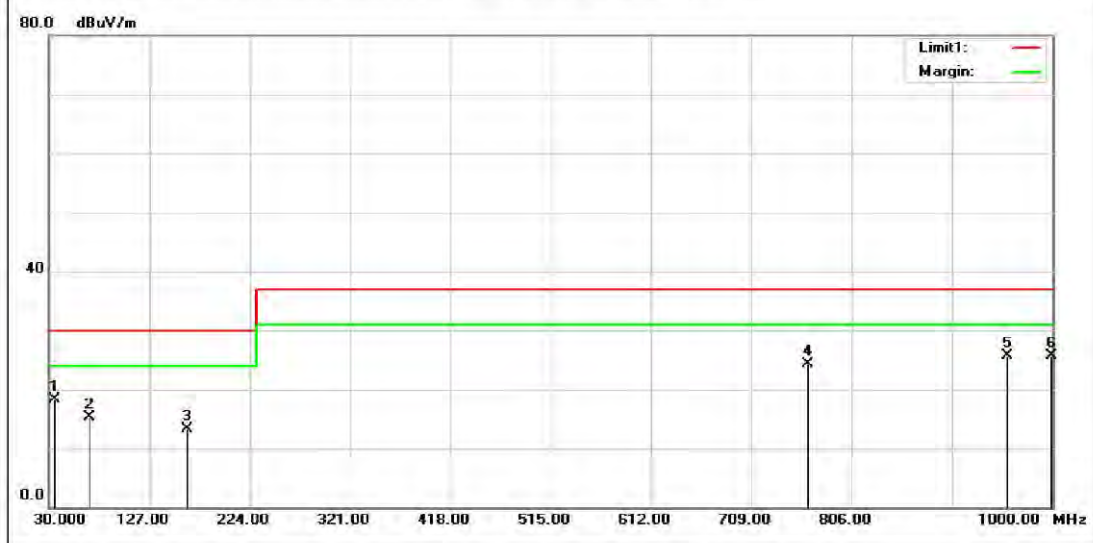
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Config_4_V

Site: SGS 10m Chamber	Date: 2019/11/19	Time: 下午 10:28:18
Limit: CISPR22 Class B 10m Radiation	Polarization: Vertical	Temperature: 20 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 65 %
Report: File :MH-2019-A0118	Distance: 10m	Air Pressure: 1012 hpa
Tester:		
Note: LTE B05		

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		35.5391	30.12	-11.79	18.33	30.00	-11.67			QP	
2		68.8000	28.15	-12.75	15.40	30.00	-14.60			QP	
3		163.8600	23.93	-10.56	13.37	30.00	-16.63			QP	
4		764.2900	23.01	1.37	24.38	37.00	-12.62			QP	
5		956.3500	23.06	2.57	25.63	37.00	-11.37			QP	
6	*	999.0300	23.05	2.68	25.73	37.00	-11.27	400	32	QP	

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

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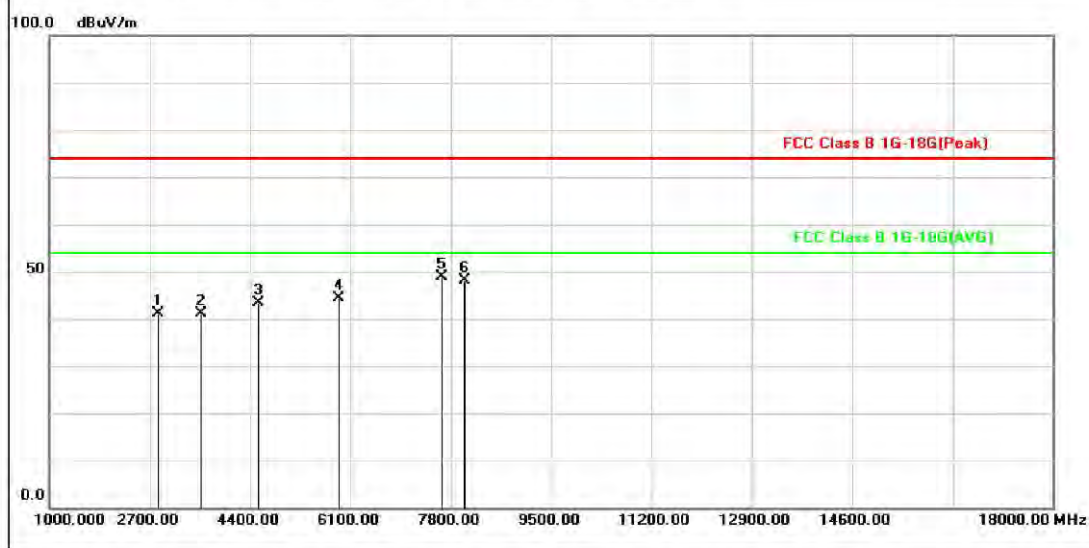
Above 1GHz

1GHz ~ 18GHz

Config_1_H

Site: SGS 966 Chamber A	Date: 2019/11/6	Time: 下午 01:42:11
Limit: FCC Class B 1G-18G(Peak)	Polarization: Horizontal	Temperature: 23 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 1015 hpa
Tester: Boris Liao		
Note: WCDMA BIV		

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		2853.000	51.82	-10.60	41.22	74.00	-32.78			peak	
2		3567.000	51.12	-9.90	41.22	74.00	-32.78			peak	
3		4536.000	51.45	-8.05	43.40	74.00	-30.60			peak	
4		5913.000	48.68	-4.41	44.27	74.00	-29.73			peak	
5	*	7647.000	47.39	1.47	48.86	74.00	-25.14	100	210	peak	
6		8038.000	45.61	2.47	48.08	74.00	-25.92			peak	

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

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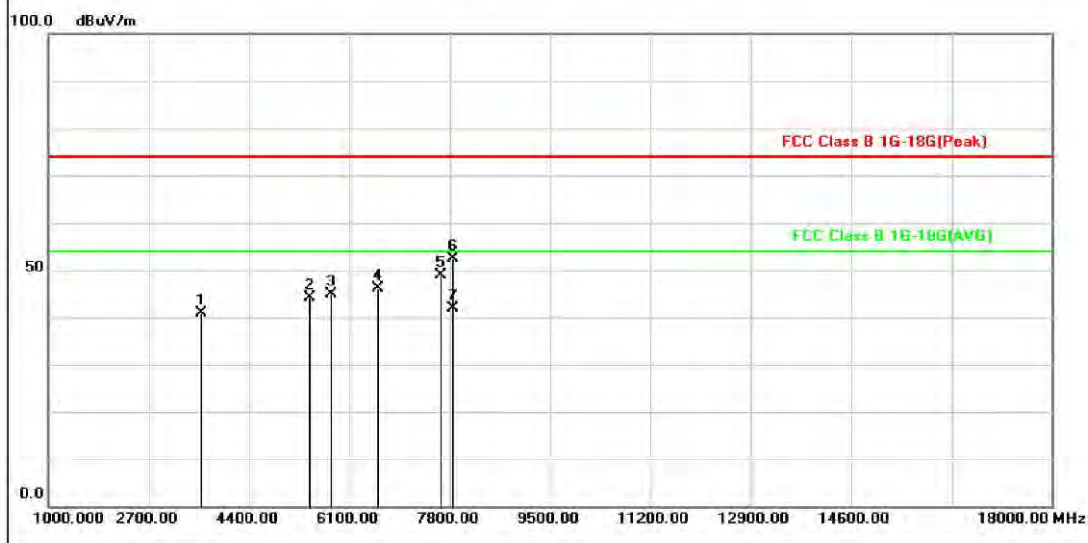
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Config_1_V

Site: SGS 966 Chamber A	Date: 2019/11/6	Time: 下午 01:22:34
Limit: FCC Class B 1G-18G(Peak)	Polarization: Vertical	Temperature: 23 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 65 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 1015 hpa
Tester: Boris Liao		
Note: WCDMA BIV		

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		3584.000	50.58	-9.76	40.82	74.00	-33.18			peak	
2		5437.000	50.44	-6.36	44.08	74.00	-29.92			peak	
3		5794.000	50.00	-5.01	44.99	74.00	-29.01			peak	
4		6593.000	48.12	-2.03	46.09	74.00	-27.91			peak	
5		7647.000	47.49	1.47	48.96	74.00	-25.04			peak	
6		7851.000	50.77	1.65	52.42	74.00	-21.58	100	36	peak	
7	*	7851.000	40.14	1.65	41.79	54.00	-12.21	100	36	AVG	

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

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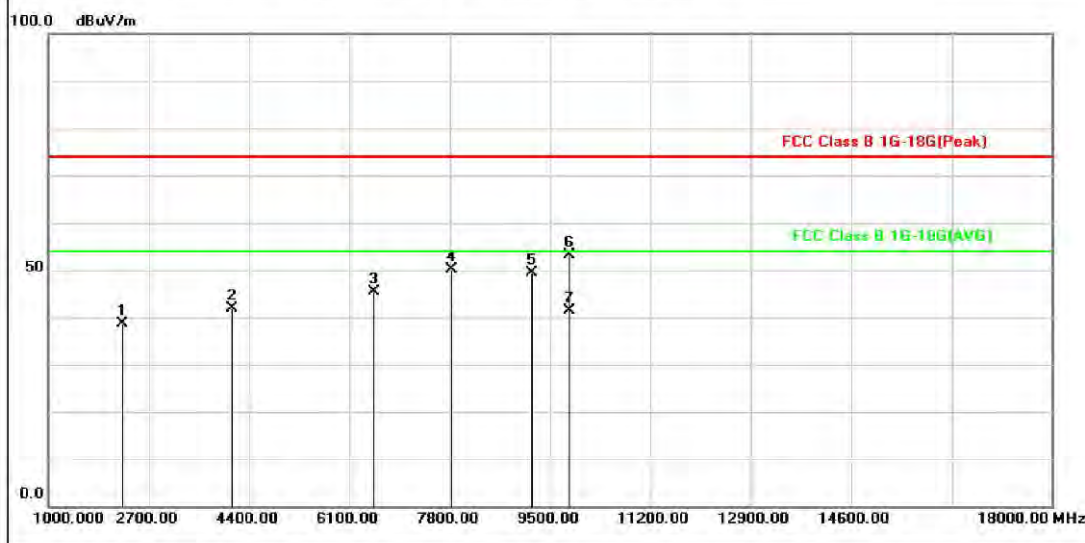
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Config_2_H

Site: SGS 966 Chamber A	Date: 2019/11/6	Time: 下午 02:14:26
Limit: FCC Class B 1G-18G(Peak)	Polarization: Horizontal	Temperature: 23 °C
Mode: Config 2	Power: From System	Humidity: 65 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 1015 hpa
Tester: Boris Liao		
Note: Data External Read		

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		2258.000	50.99	-12.45	38.54	74.00	-35.46			peak	
2		4111.000	50.38	-8.41	41.97	74.00	-32.03			peak	
3		6525.000	47.58	-2.28	45.30	74.00	-28.70			peak	
4		7834.000	48.61	1.61	50.22	74.00	-23.78			peak	
5		9194.000	45.65	3.83	49.48	74.00	-24.52			peak	
6		9823.000	47.65	5.55	53.20	74.00	-20.80	100	140	peak	
7	*	9823.000	35.93	5.55	41.48	54.00	-12.52	100	140	AVG	

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

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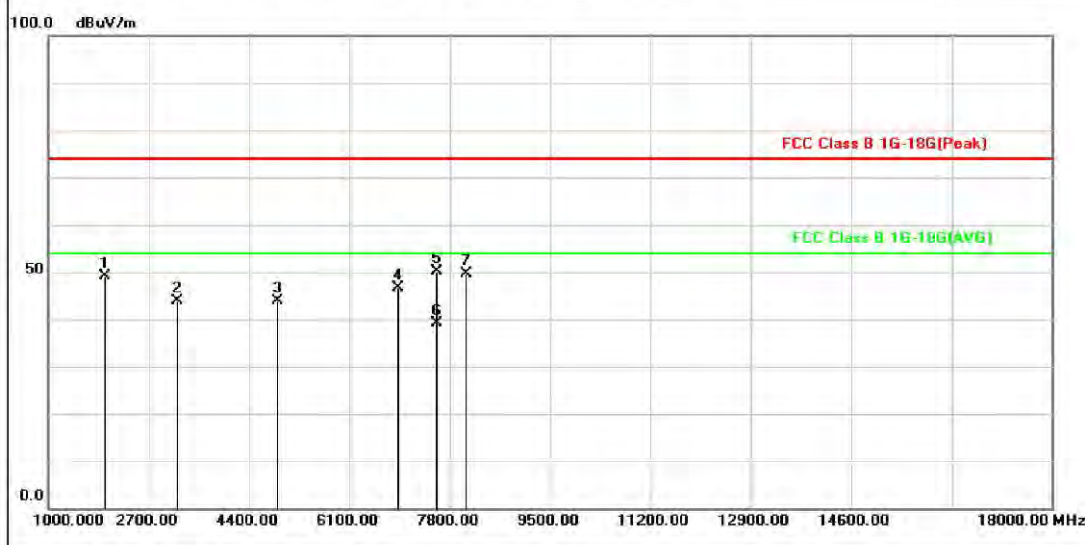
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Config_2_V

Site: SGS 966 Chamber A	Date: 2019/11/6	Time: 下午 01:58:49
Limit: FCC Class B 1G-18G(Peak)	Polarization: Vertical	Temperature: 23 °C
Mode: Config 2	Power: From System	Humidity: 65 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 1015 hpa
Tester: Boris Liao		
Note: Data External Read		

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		1952.000	64.92	-15.87	49.05	74.00	-24.95			peak	
2		3193.000	54.11	-10.25	43.86	74.00	-30.14			peak	
3		4893.000	51.30	-7.34	43.96	74.00	-30.04			peak	
4		6916.000	47.76	-1.07	46.69	74.00	-27.31			peak	
5		7579.000	48.65	1.53	50.18	74.00	-23.82	100	53	peak	
6	*	7579.000	37.67	1.53	39.20	54.00	-14.80	100	53	AVG	
7		8089.000	47.27	2.35	49.62	74.00	-24.38			peak	

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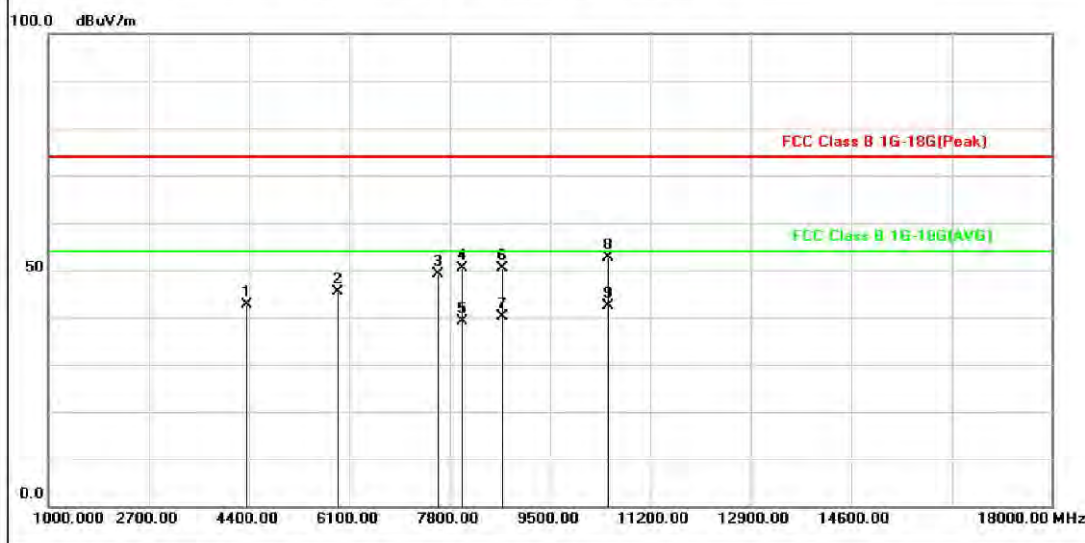
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Config_3_H

Site: SGS 966 Chamber A	Date: 2019/11/6	Time: 下午 02:57:44
Limit: FCC Class B 1G-18G(Peak)	Polarization: Horizontal	Temperature: 23 °C
Mode: Config 3	Power: From Battery	Humidity: 65 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 1015 hpa
Tester: Boris Liao		
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		4366.000	50.74	-8.11	42.63	74.00	-31.37			peak	
2		5896.000	49.93	-4.47	45.46	74.00	-28.54			peak	
3		7613.000	47.58	1.51	49.09	74.00	-24.91			peak	
4		8004.000	47.95	2.50	50.45	74.00	-23.55			peak	
5		8004.000	36.70	2.50	39.20	54.00	-14.80			AVG	
6		8701.000	48.10	2.28	50.38	74.00	-23.62			peak	
7		8701.000	37.96	2.28	40.24	54.00	-13.76			AVG	
8		10486.000	46.13	6.50	52.63	74.00	-21.37	100	57	peak	
9	*	10486.000	35.98	6.50	42.48	54.00	-11.52	100	57	AVG	

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

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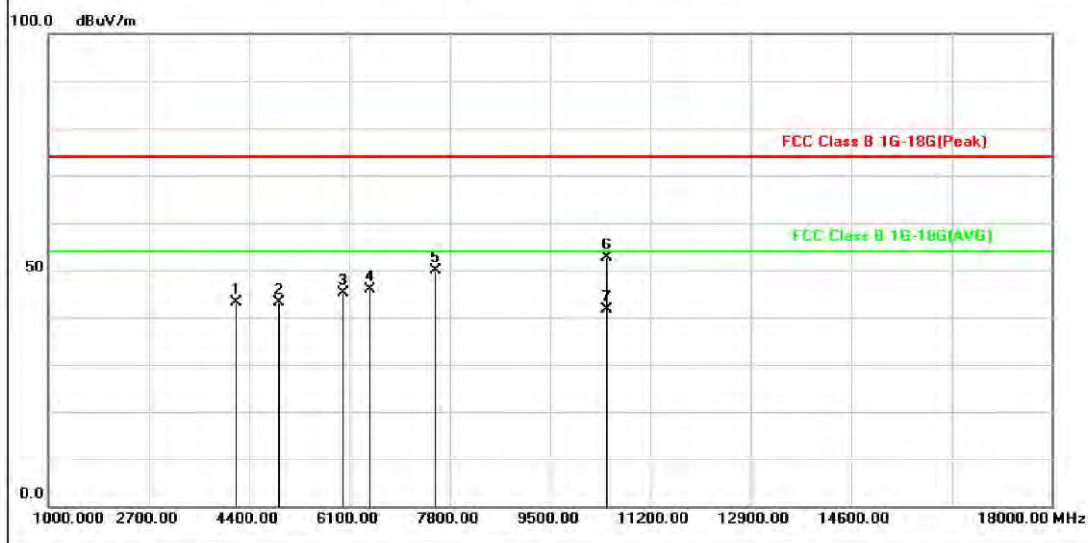
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Config_3_V

Site: SGS 966 Chamber A	Date: 2019/11/6	Time: 下午 02:36:20
Limit: FCC Class B 1G-18G(Peak)	Polarization: Vertical	Temperature: 23 °C
Mode: Config 3	Power: From Battery	Humidity: 65 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 1015 hpa
Tester: Boris Liao		
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		4179.000	51.40	-8.35	43.05	74.00	-30.95			peak	
2		4910.000	50.39	-7.31	43.08	74.00	-30.92			peak	
3		5998.000	49.22	-4.20	45.02	74.00	-28.98			peak	
4		6457.000	48.29	-2.50	45.79	74.00	-28.21			peak	
5		7562.000	48.26	1.53	49.79	74.00	-24.21			peak	
6		10469.000	46.06	6.50	52.56	74.00	-21.44	100	30	peak	
7	*	10469.000	35.05	6.50	41.55	54.00	-12.45	100	30	AVG	

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

Page: 1

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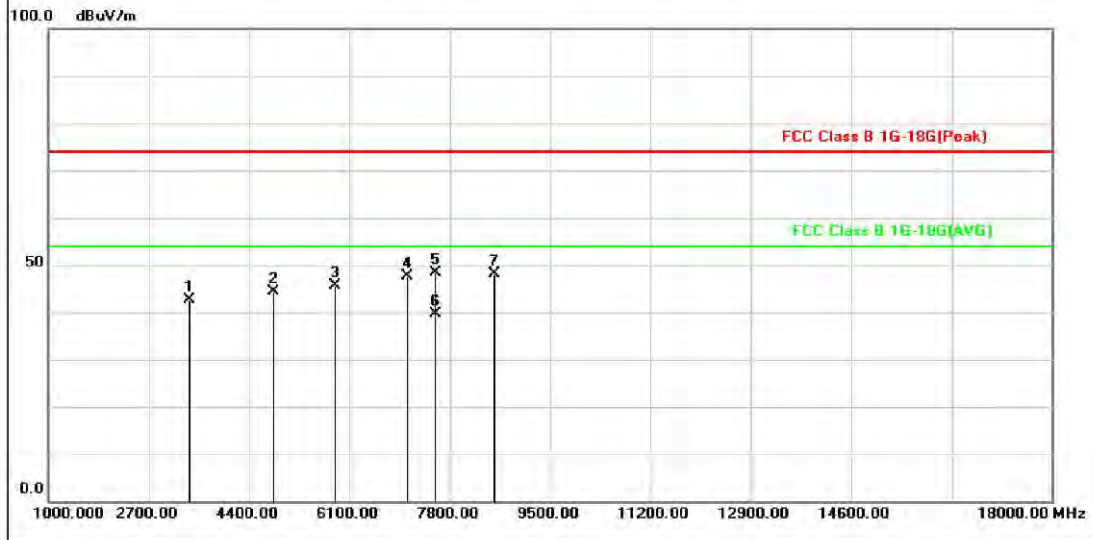
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Config_4_H

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 03:06:13
Limit: FCC Class B 1G-18G(Peak)	Polarization: Horizontal	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 58 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 999 hpa
Tester: Boris Liao		
Note: GSM 850		

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		3380.000	53.32	-10.62	42.70	74.00	-31.30			peak	
2		4825.000	51.67	-7.37	44.30	74.00	-29.70			peak	
3		5862.000	50.21	-4.68	45.53	74.00	-28.47			peak	
4		7086.000	47.45	0.13	47.58	74.00	-26.42			peak	
5		7562.000	46.80	1.53	48.33	74.00	-25.67	105	201	peak	
6	*	7562.000	38.12	1.53	39.65	54.00	-14.35	105	201	AVG	
7		8548.000	46.15	2.00	48.15	74.00	-25.85			peak	

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

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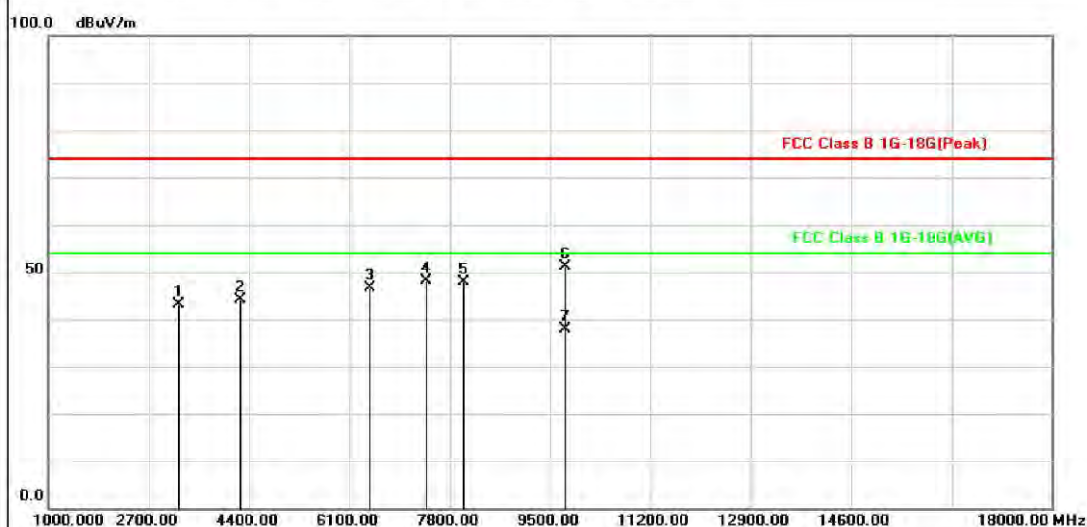
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Config_4_V

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 02:57:44
Limit: FCC Class B 1G-18G(Peak)	Polarization: Vertical	Temperature: 22 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 58 %
Report: MH-2019-A0118	Distance: 3m	Air Pressure: 999 hpa
Tester: Boris Liao		
Note: GSM 850		

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		3210.000	53.33	-10.31	43.02	74.00	-30.98			peak	
2		4247.000	52.36	-8.20	44.16	74.00	-29.84			peak	
3		6457.000	49.25	-2.50	46.75	74.00	-27.25			peak	
4		7392.000	46.66	1.42	48.08	74.00	-25.92			peak	
5		8038.000	45.43	2.47	47.90	74.00	-26.10			peak	
6		9755.000	45.77	5.32	51.09	74.00	-22.91	100	199	peak	
7	*	9755.000	32.53	5.32	37.85	54.00	-16.15	100	199	AVG	

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

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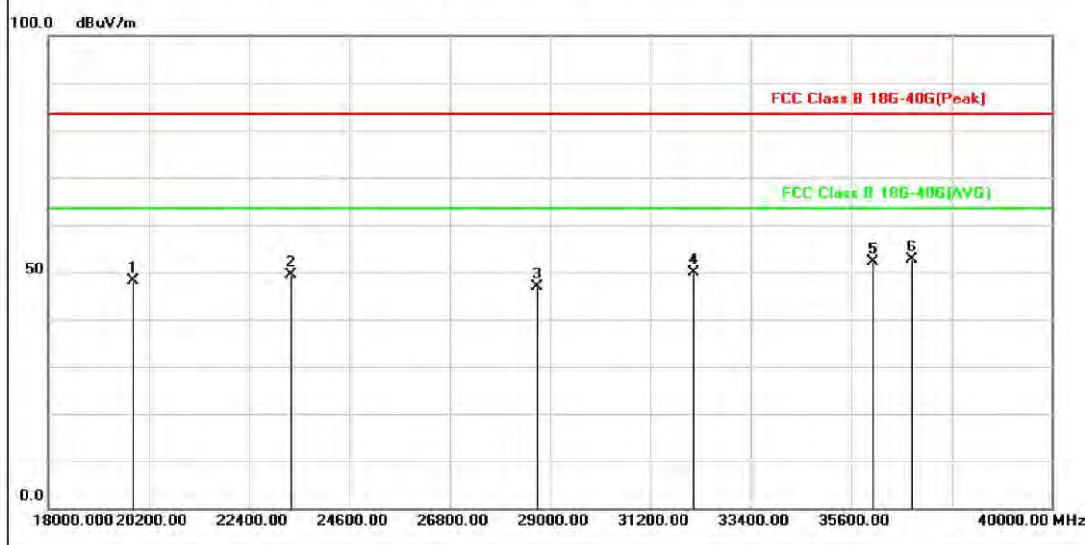


18GHz ~ 40GHz

Config_1_H

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 06:40:48
Limit: FCC Class B 18G-40G(Peak)	Polarization: Horizontal	Temperature: 21 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
Note: WCDMA BIV		

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		19848.000	46.97	1.19	48.16	83.50	-35.34			peak	
2		23324.000	45.83	3.52	49.35	83.50	-34.15			peak	
3		28714.000	43.23	3.53	46.76	83.50	-36.74			peak	
4		32146.000	42.98	6.80	49.78	83.50	-33.72			peak	
5		36084.000	42.75	9.37	52.12	83.50	-31.38			peak	
6	*	36942.000	41.03	11.52	52.55	83.50	-30.95	100	169	peak	

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

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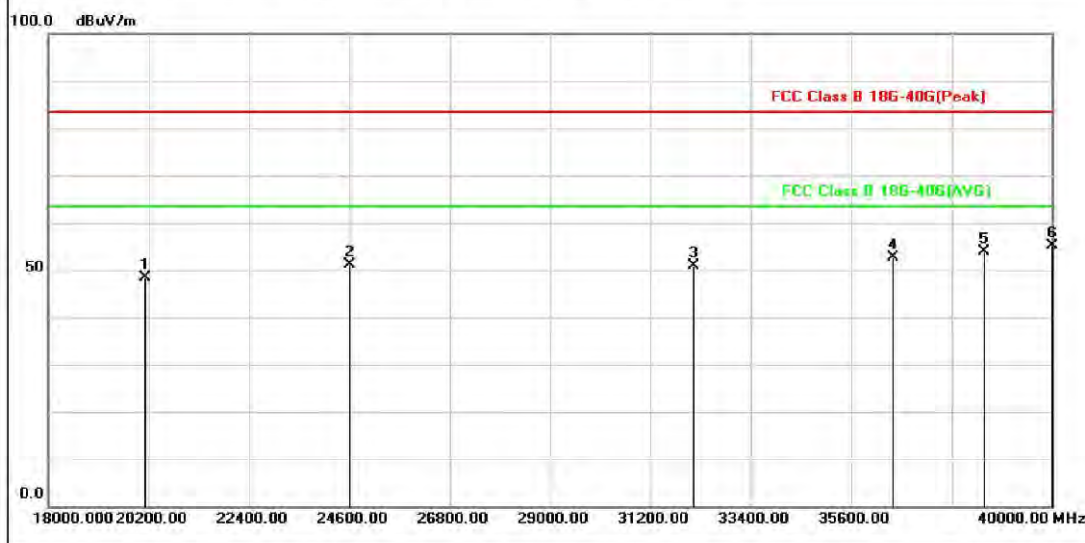
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Config_1_V

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 06:39:22
Limit: FCC Class B 18G-40G(Peak)	Polarization: Vertical	Temperature: 21 °C
Mode: Config 1	Power: AC 120V/60Hz	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
Note: WCDMA BIV		

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		20134.000	47.22	1.26	48.48	83.50	-35.02			peak	
2		24622.000	46.29	4.72	51.01	83.50	-32.49			peak	
3		32146.000	44.15	6.80	50.95	83.50	-32.55			peak	
4		36524.000	42.42	10.27	52.69	83.50	-30.81			peak	
5		38504.000	39.31	14.51	53.82	83.50	-29.68			peak	
6	*	40000.000	37.05	18.00	55.05	83.50	-28.45	100	177	peak	

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

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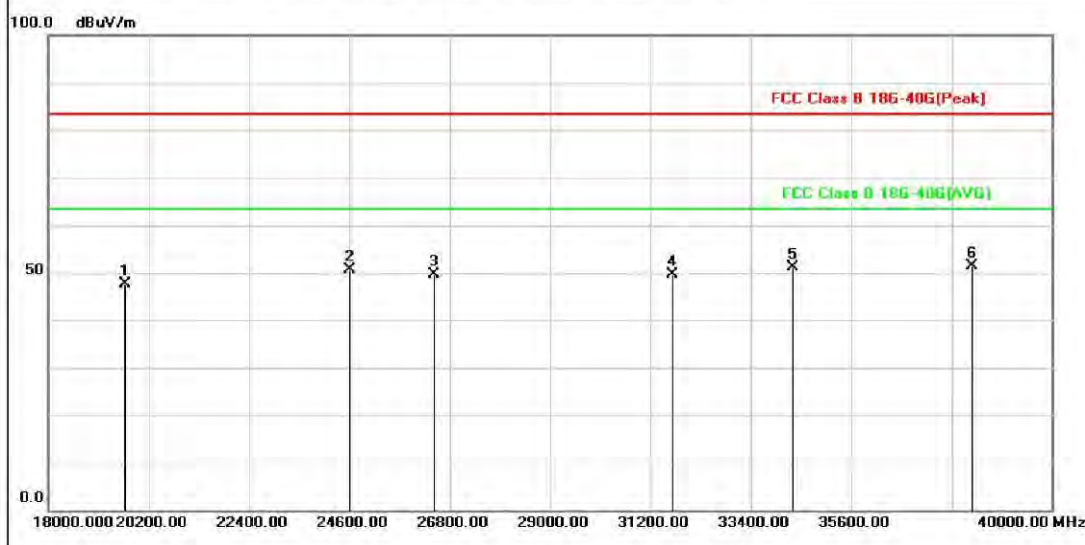
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Config_2_H

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 06:53:52
Limit: FCC Class B 18G-40G(Peak)	Polarization: Horizontal	Temperature: 21 °C
Mode: Config 2	Power: From System	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
Note: Data External Read		

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		19672.000	46.68	0.95	47.63	83.50	-35.87			peak	
2		24622.000	45.94	4.72	50.66	83.50	-32.84			peak	
3		26470.000	45.71	3.93	49.64	83.50	-33.86			peak	
4		31684.000	43.39	6.18	49.57	83.50	-33.93			peak	
5		34324.000	44.00	7.14	51.14	83.50	-32.36			peak	
6	*	38262.000	37.91	13.59	51.50	83.50	-32.00	100	170	peak	

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

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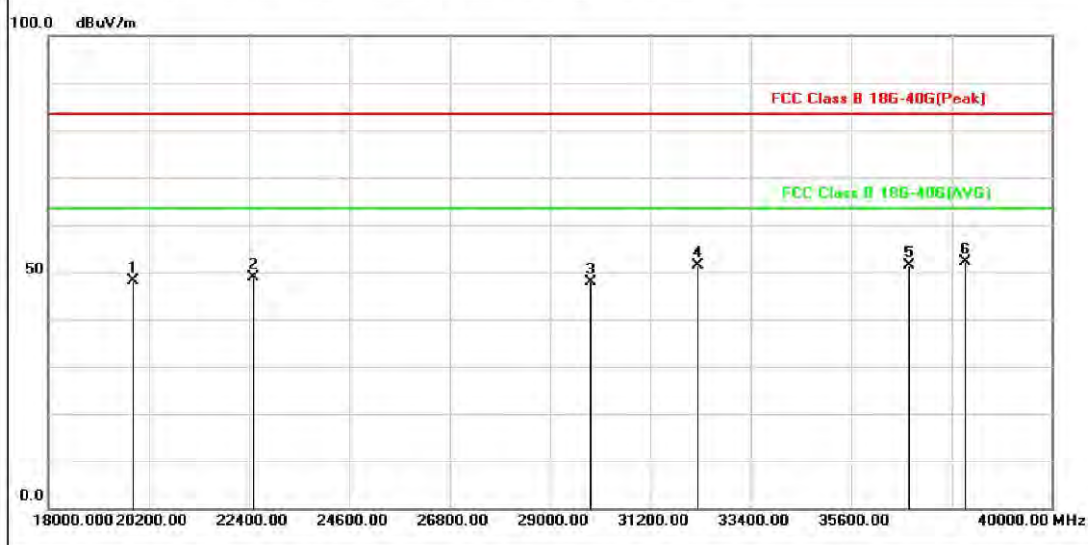
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Config_2_V

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 06:52:12
Limit: FCC Class B 18G-40G(Peak)	Polarization: Vertical	Temperature: 21 °C
Mode: Config 2	Power: From System	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
Note: Data External Read		

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		19848.000	46.95	1.19	48.14	83.50	-35.36			peak	
2		22488.000	45.64	3.28	48.92	83.50	-34.58			peak	
3		29880.000	43.59	4.35	47.94	83.50	-35.56			peak	
4		32234.000	44.66	6.67	51.33	83.50	-32.17			peak	
5		36876.000	39.93	11.33	51.26	83.50	-32.24			peak	
6	*	38108.000	39.09	13.01	52.10	83.50	-31.40	100	176	peak	

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

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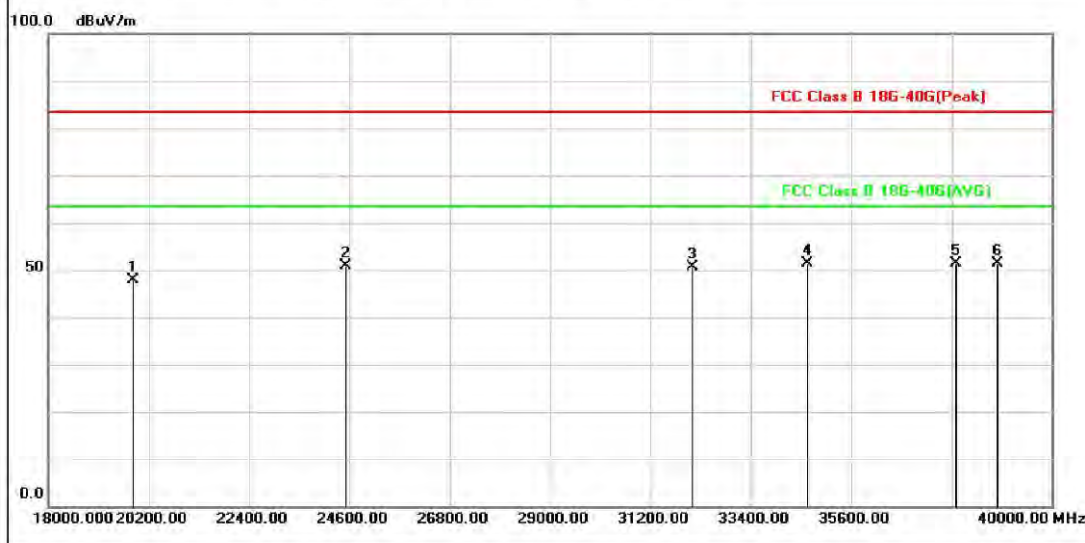
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Config_3_H

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 07:16:54
Limit: FCC Class B 18G-40G(Peak)	Polarization: Horizontal	Temperature: 21 °C
Mode: Config 3	Power: From Battery	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
Note: MP3		

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		19848.000	46.62	1.19	47.81	83.50	-35.69			peak	
2		24512.000	46.04	4.80	50.84	83.50	-32.66			peak	
3		32124.000	43.76	6.82	50.58	83.50	-32.92			peak	
4		34632.000	43.88	7.42	51.30	83.50	-32.20			peak	
5	*	37888.000	39.08	12.38	51.46	83.50	-32.04	100	175	peak	
6		38812.000	36.64	14.62	51.26	83.50	-32.24			peak	

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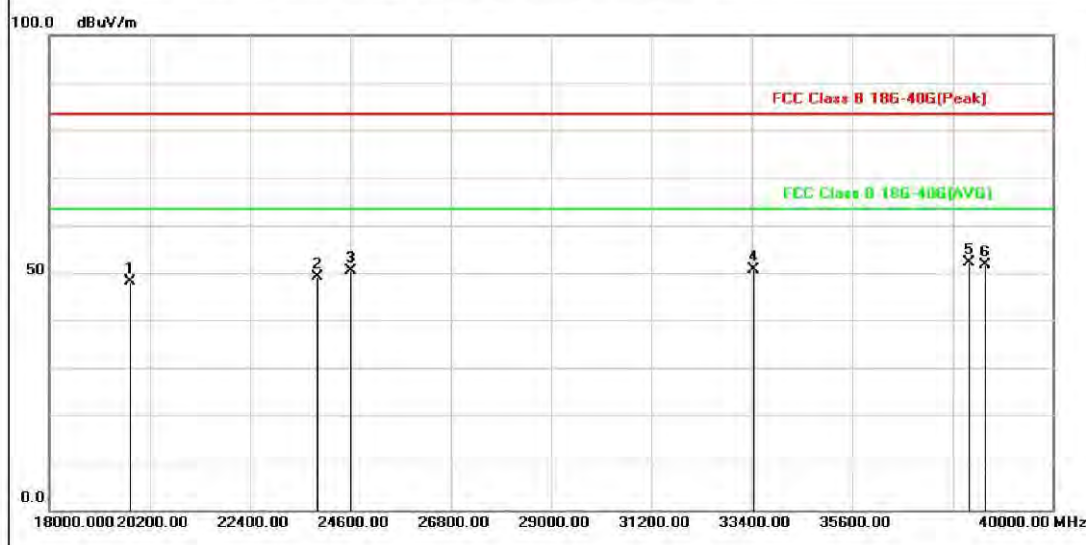
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Config_3_V

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 07:15:38
Limit: FCC Class B 18G-40G(Peak)	Polarization: Vertical	Temperature: 21 °C
Mode: Config 3	Power: From Battery	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
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		19782.000	47.04	1.09	48.13	83.50	-35.37			peak	
2		23874.000	45.39	3.70	49.09	83.50	-34.41			peak	
3		24600.000	45.72	4.74	50.46	83.50	-33.04			peak	
4		33444.000	43.84	6.87	50.71	83.50	-32.79			peak	
5	*	38152.000	38.94	13.17	52.11	83.50	-31.39	100	184	peak	
6		38526.000	37.11	14.51	51.62	83.50	-31.88			peak	

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

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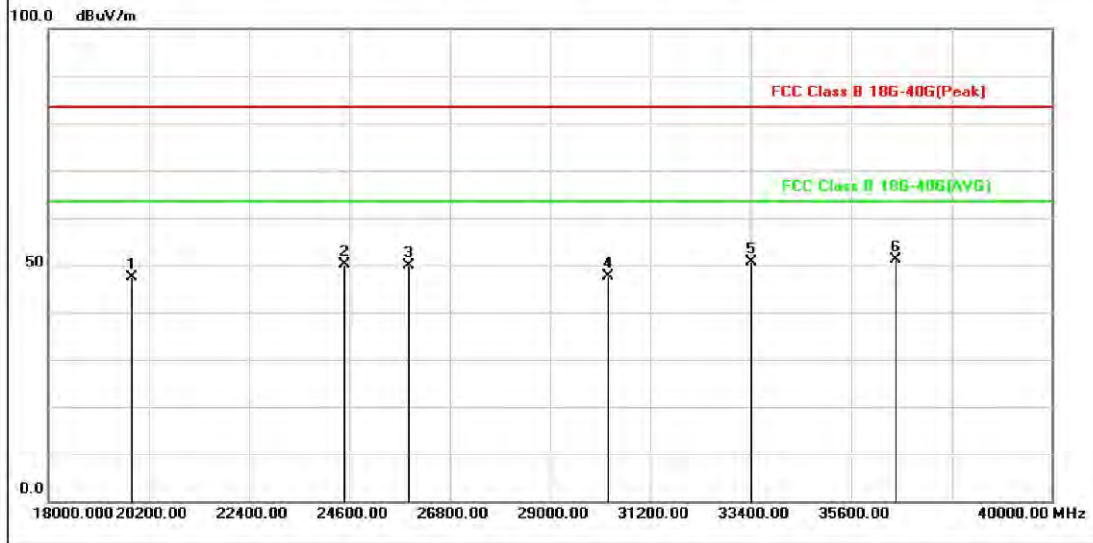
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Config_4_H

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 07:29:33
Limit: FCC Class B 18G-40G(Peak)	Polarization: Horizontal	Temperature: 21 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
Note: GSM 850		

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		19826.000	46.24	1.15	47.39	83.50	-36.11			peak	
2		24490.000	45.36	4.78	50.14	83.50	-33.36			peak	
3		25898.000	45.52	4.32	49.84	83.50	-33.66			peak	
4		30276.000	43.26	4.34	47.60	83.50	-35.90			peak	
5		33422.000	43.71	6.85	50.56	83.50	-32.94			peak	
6	*	36590.000	40.58	10.47	51.05	83.50	-32.45	100	183	peak	

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

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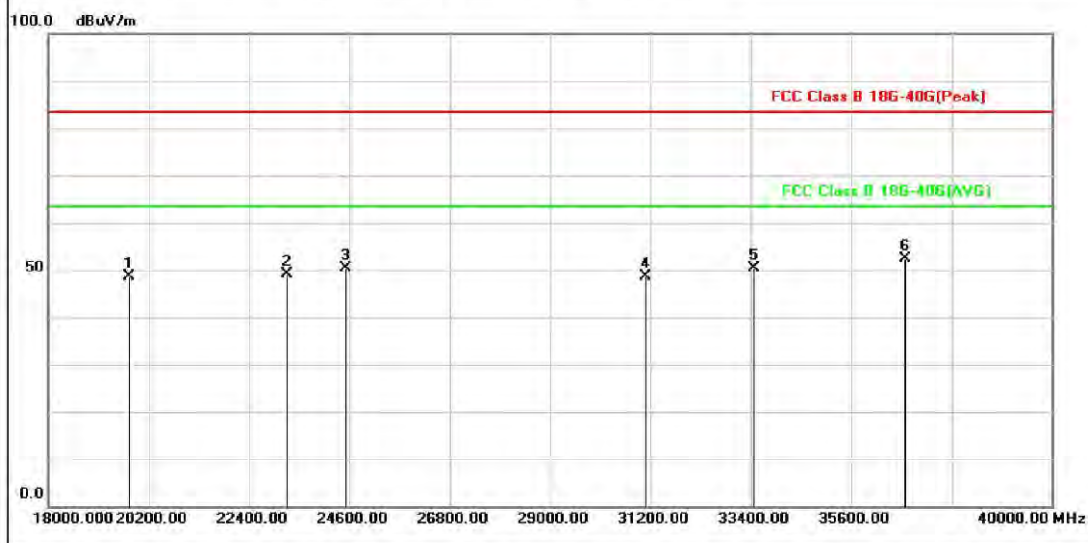
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Config_4_V

Site: SGS 966 Chamber A	Date: 2019/11/19	Time: 下午 07:28:40
Limit: FCC Class B 18G-40G(Peak)	Polarization: Vertical	Temperature: 21 °C
Mode: Config 4	Power: AC 120V/60Hz	Humidity: 61 %
Report: MH-2019-A0118	Distance: 1m	Air Pressure: 1002 hpa
Tester: Boris Liao		
Note: GSM 850		

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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		19782.000	47.46	1.09	48.55	83.50	-34.95			peak	
2		23236.000	45.79	3.43	49.22	83.50	-34.28			peak	
3		24512.000	45.58	4.80	50.38	83.50	-33.12			peak	
4		31090.000	43.87	4.72	48.59	83.50	-34.91			peak	
5		33466.000	43.60	6.88	50.48	83.50	-33.02			peak	
6	*	36788.000	41.28	11.07	52.35	83.50	-31.15	100	190	peak	

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

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