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FCC CERTIFICATION REPORT

Test Report No.: EI/2012/A0014

Applicant : Sony Mobile Communications AB Address of Applicant : Nya Vattentornet 22188 Lund/SWEDEN

Equipment Under Test (EUT) :

Product Name: Mobile Phone

Brand Name : Sony

Marketing Name : C2105

Model No.: PM-0290-BV

Added Model(s) : N/A

FCC ID : PY7PM-0290

Standards	: FCC Part 15:2010, Subpart B, Class B
Date of Receipt	: Oct. 29, 2012
Date of Test	: Oct. 29 ~ Nov. 15, 2012
Date of Issue	: May 09, 2013
Test Result :	PASS

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.

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Tesi	t Bv:
	v Dy.

Jimmy Liu / Engineer Jimmy Liu / Engineer

Date May 09, 2013

Approved By

Date	May 09, 2013

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Version

Version No.	Description	Date
00	Original report	Feb. 07, 2013
01	Modified report header, added radio feature defining statements, renew test result plots.	Mar.11. 2013
02	Revise the incorrect naming of product specification.	Mar 27, 2013
03	Add FCC Registration Number	Apr. 29, 2013
04	Revised product specification tables	May 09, 2013

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1. General Information

1.1 Applicant & Manufacturer Information

Applicant : Sony Mobile Communications AB Address of Applicant : Nya Vattentornet 22188 Lund/SWEDEN

1.2 General Description of EUT

Name : Mobile Phone Brand Name : Sony Marketing Name : C2105 Model No. : PM-0290-BV Added Model(s) : N/A FCC ID : PY7PM-0290 Model Difference : N/A Filing Type : Certification

Bluetooth BR+EDR:

Bluetooth Version:	V2.1 + EDR (GFSK + n/4DQPSK + 8DPSK)		
Channel number:	79 channels		
Modulation type: Frequency Hopping Spread Spectrum			
Transmit Power:	9.75dBm		
Frequency Range:	2.402GHz – 2.480GHz		
Dwell Time:	<= 0.4s		
Antenna Designation:	PIFA Antenna, 0.02dBi.		

The EUT is compliance for Bluetooth function.

For more detail please refer to report No.: EH/2012/B0047

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Bluetooth Low Energy:

Frequency Range:	2402 – 2480MHz	
Bluetooth Version:	V4.0 Dual mode	
Channel number:	40 channels	
Modulation type:	GFSK	
Transmit Power:	1.45 dBm (Peak)	
Antenna Designation:	PIFA Antenna, Gain: 0.02dBi	

The EUT is compliance for Bluetooth V4.0 function. For more detail please refer to report No.: EH/2012/B0048

NFC:

Operating Frequency 13.56MHz	
Transmit Power < 123dBuV/m at 3m.	
Number of Channels	1
Antenna Type	Loop Antenna
Modulation Type	ASK, BPSK

The EUT is compliance for NFC Standard. For more detail please refer to report No.: EH/2012/B0019

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WLAN	2.4GHz+5.7GHz:	
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Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology
11b/g	2412-2462	11	b: 20.36dBm g: 19.19dBm	DSSS, OFDM
11n	HT20 2412-2462	11	HT20: 19.13dBm	OFDM
11a	5725-5850	5	a : 19.38 dBm	
11n (5GHz)	HT20 5725-5850	5	HT20: 19.26 dBm	OFDM
11n (5GHz)	HT40 5725-5850	2	HT40: 19.50 dBm	
Antenna Designation:		PIFA Antenna, 2.4GHz Gain: 0.02dBi 5GHz Gain: 3.11 dBi (5725MHz-5850MHz)		
Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
Transition Rate:		802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 – 150Mbps		

The EUT is compliance for IEEE 802.11 a/b/g/n Standard For more detail please refer to report No.: EH/2012/B0049

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WI AN 5GHz

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WLAN 50					
Wi-Fi	Frequency Range	Channels	Rated Power (Avg)	Rated Power (EIRP)	Modulation Technology
	5150~5250	4	15.95dBm	16.21dBm	
11a	5250~5350	4	15.87dBm	16.90dBm	OFDM
	5470~5725	11	15.97dBm	19.37dBm	
	HT20 5150~5250	4	HT20: 15.97dBm	HT20: 16.23dBm	
11n	HT20 5250~5350	4	HT20: 15.92dBm	HT20: 16.95dBm	OFDM
	HT20 5470~5725	11	HT20: 15.98dBm	HT20: 19.38dBm	
	HT40 5150~5250	2	HT40: 15.77dBm	HT40: 16.03dBm	
11n	HT40 5250~5350	2	HT40: 15.78dBm	HT40: 16.81dBm	OFDM
	HT40 5470~5725	5	HT40: 15.93dBm	HT40: 19.33dBm	
Antenna Designation		PIFA Antenna, 5GHz Gain: 0.26 dBi (5150MHz-5250MHz) 5GHz Gain: 1.03 dBi (5250MHz-5350MHz) 5GHz Gain: 3.40 dBi (5470MHz-5725MHz)			
Modulation type		CCK, DQPSK, DBPSK for DSSS			
		64QAM, 16QAM, QPSK, BPSK for OFDM 802.11 a: 6/9/12/18/24/36/48/54 Mbps			
Transition Rate:		802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 – 150Mbps			

The EUT is compliance for IEEE 802.11 a/n_HT20M/n_HT40M Standard. For more detail please refer to report No.: EH/2012/B0050

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GSM:

	Operating Frequency		Rated Power
Cellular Phone Standards	GSM/GPRS 850, Class 12	824.2 MHz– 848.8 MHz	33 dBm
Frequency Range and	EDGE 850, Class 12	824.2 MHz– 848.8 MHz	27 dBm
Power.	GSM/GPRS 1900, Class 12	1850.2MHz – 1909.8MHz	30 dBm
EDGE 1900, Class 12		1850.2MHz – 1909.8MHz	26 dBm
Type of Emission:	GSM850: 248KGXW, GSM1900: 245KGXW : GPRS850: 244KGXW, GPRS1900: 246KGXW EDEG850: 244KG7W, EDGE1900: 249KG7W		

This test report applies for 850 /1900 GSM / GPRS / EDGE. For more detail please refer to report No.: EH/2012/B0018

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1.3 Details of EUT

Hardware Version:	A		
Software Version:	15.0.A.1.1		
Simple Hands Free:	Model No.: MH410c, Supplier: Foster Electric Type No.: AG-1100		
USB Cable:	Model No.: EC802, Supplier: Foxlink Type No.: AI-0402		
Car Charger:	Model No.: AN400, Supplier: Salcomp Type No.: CAA-0003013		
Fast Charger:	Model No.: EP850, Supplier: Emerson Type No.:CAA-0004008-US		
	3.7Vdc from Li-Polymer battery		
Power Supply:	Battery:	Model No.: BA900, Supplier: Sony Type No.: AB-0500	
	Adapter :	Model No.: EP800, Supplier: Salcomp Type No.: CAA-0002016-US	

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Test Plan:	1	Γ	Γ
<i>C2105</i>	Config 1	Config 2	Config 3
Applicable standard (FCC 15B)			
Accessories	UE + Battery(BA 900) + USB Cable (EC802) +SHF (MH410C)	UE + Battery(BA 900) + AC Adaptor (EP 850) +USB Cable (EC802) + SHF(MH410C)	UE + Battery(BA 900) + AC Adaptor(EP 800) +USB Cable(EC802) + SHF(MH410C)
	DATA Link	CAMERA	CAMERA
Description	DATA Link + Idle	FULL SYSTEM + Idle	FULL SYSTEM + Idle
radiated emission	DATA Link	Recording&play recording&MP3	Recording&play recording&MP3
conducted emission (DC Power)	NA	N/A	N/A
conducted emission (AC Power)	DATA Link	Recording&play recording&MP3	Recording&play recording&MP3

* Test configuration by client

1.4 Operation Procedure

- 1. Set down EUT with support units and turn on the power of all equipment.
- 2. Pre-test the EUT in all modes by each model, then figure the worst case out.
- 3. Tests under the normal operation pattern.

1.5 Description of Support Units

PRODUCT	MANUFACTURER	MODEL NO.	SERIAL NO.
NOTEBOOK	IBM	L412	LR-ZYMYD
Mouse	HP	M-UAE96	390938-001
Printer	HP	DJ3820	CN34L181B1

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1.6 Modification List

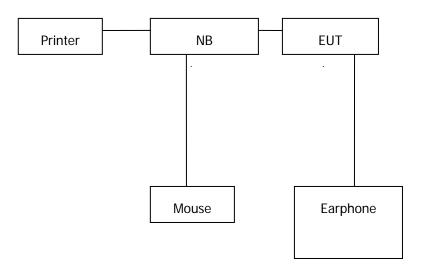
No modification by SGS Taiwan Electronics & Communication Laboratory.

1.7 Cable List

Cable Type	Length	Shield/Non-shield
USB cable with core near EUT, near Adapter	1.2m	Non-shielding
Earphone	1.5m	Non-shielding

1.8 Test Set-Up Configuration

Config1



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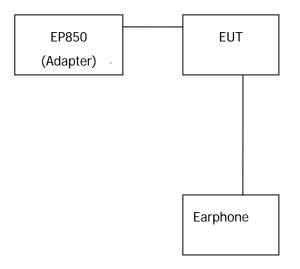
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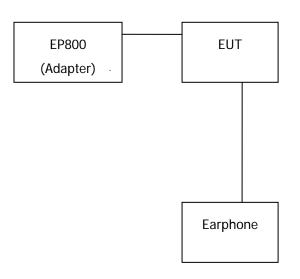


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Config2



Config 3



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1.9 Measurment Procedure

Conducted Emission Testing was performed according ANSI C63.4:2003 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 C63.4:2003 at the 9*6*6 3m Semi-Anechoic chamber test site. The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 3meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum. The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2003. FCC Registration Number: TW0513.

1.10 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15	, Subpart B
--	-------------

Test Standards	Status
FCC Part 15, Subpart B	Applicable
Deviation from Standard	No Deviation

1.11 Summary of Results

Hightest Emission					
Standard	Test Type	Result	Phase/Polar.	Frequency (MHz)	Margin(dB)
FCC Part 15 Subpart B Class B/CISPR 22	Conducted Emission	PASS	Line	3.5185	-10.91(AVG)
	Conducted Emission	FA33	Neutral		-10.46(AVG)
	Radiated Emission	PASS	Ver.	30.1600	-7.43(QP)

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2. Radio Disturbance

2.1 Test Results

	Results
Conducted Emission	Pass
Radiated Emission	Pass

2.2 Frequency Range

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)

30
1000
2000
5000
f the highest frequency or
ever is lower

2.3 Limits Of Conducted And Radiated Emission

2.3.1 Limit Of Conducted Emission Of FCC Part 15, Subpart B/CISPR 22

FREQUENCY	Class A (dBuV)		Class B	(dBuV)
(MHz)	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 Limit Of Radiated Emissions Of FCC Part 15, Subpart B/CISPR 22

FCC Limit:

Detector Function : Quasi – Peak

FREQUENCY	Class A (at 10m)	Class B (at 3m)
(MHz)	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	Class A (dB	uV) (at 3m)	Class B (dBuV) (at 3m)		
(MHz)	Peak	Average	Peak	Average	
Above 1000	79.3	59.3	73.9	53.9	

CISPR Limit:

Detector Function : Quasi – Peak

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

Detector Function : Peak , Average - Class A

Frequency	Average Limit	Peak Limit
range	dB(µV/m)	dB(µV/m)
GHz		
1 to 3	56	76
3 to 6	60	80

Detector Function : Peak , Average – Class B

Frequency range	Average Limit	Peak Limit
GHz	dB(µV/m)	dB(µV/m)
1 to 3	50	70
3 to 6	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

Description Manufacture		Model No.	Serial No.	Last Calibration	Next Calibration
				Date	Date
EMI Test Receiver	ROHDE&SCHWARZ	ESCS 30	828985/004	Sep. 22, 2012	Sep. 21, 2013
Coaxial Cables	N/A	WK CE Cable	N/A	Jan. 04, 2012	Jan. 03, 2013
L.I.S.N	Rolf-Heine	NNB-2/16Z	99012	Mar. 23, 2012	Mar. 22, 2013
L.I.S.N	FCC	FCC-LISN-50/250-25-2-01	04034	Mar. 23, 2012	Mar. 22, 2013
Software	Farad	EZ-EMC-VER2A1.1(USB)	N/A	N/A	N/A

2.4.2 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory NO.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

2.4.3 Operating Environment

Temperature : 26 degree C

Atmospheric Pressure: 996 mBar

2.4.3.1 Uncertainty of Conducted Emission

Expanded uncertainty (k=2) of Conducted Emission measurement is 0.98dB.

Humidity: 60 %RH

2.4.3.2 Measurement level and Factor calculate method

Factor = LISN insertion loss + Cable loss Measurement Level = Reading Level + Factor

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2.4.4 Measurement Data

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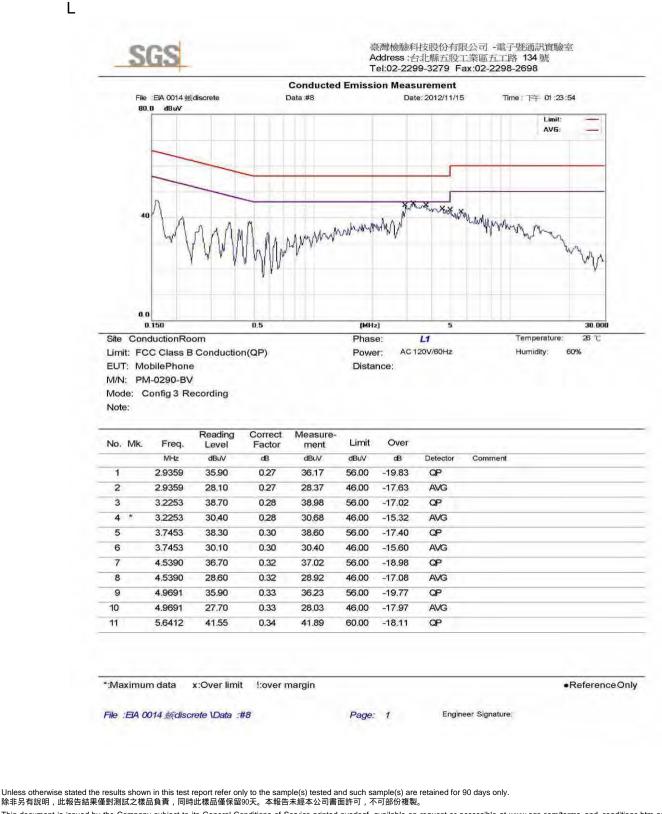


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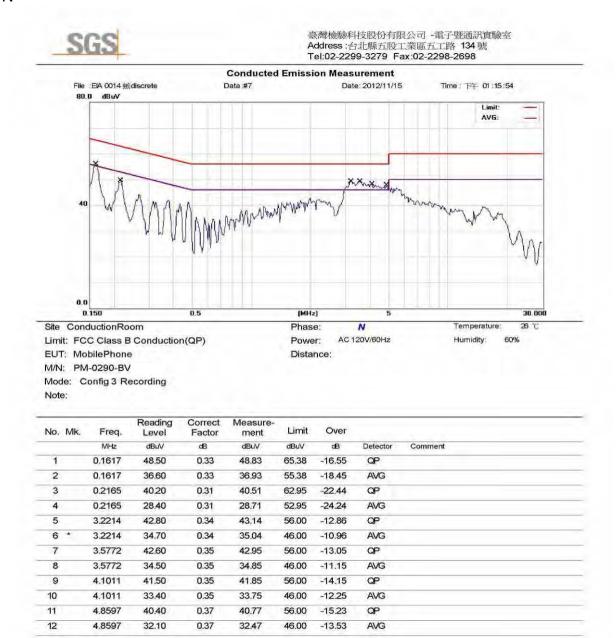
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*:Maximum data x:Over limit !:over margin

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Engineer Signature:

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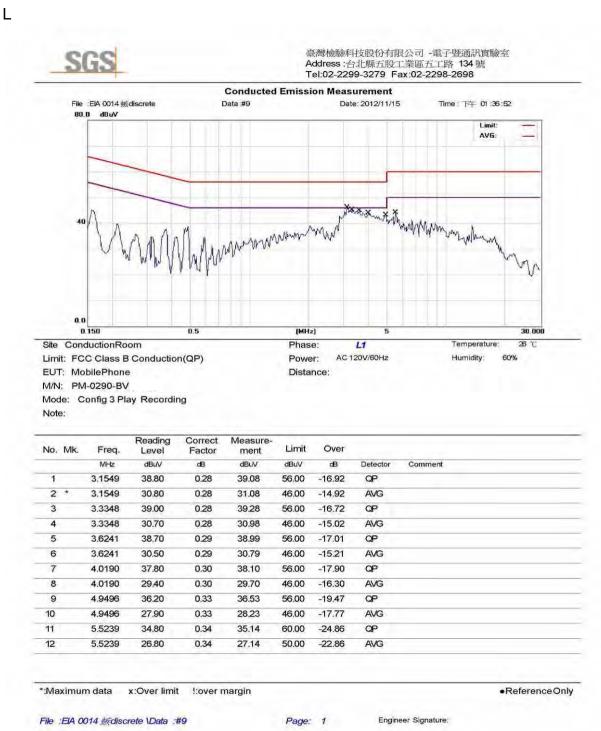
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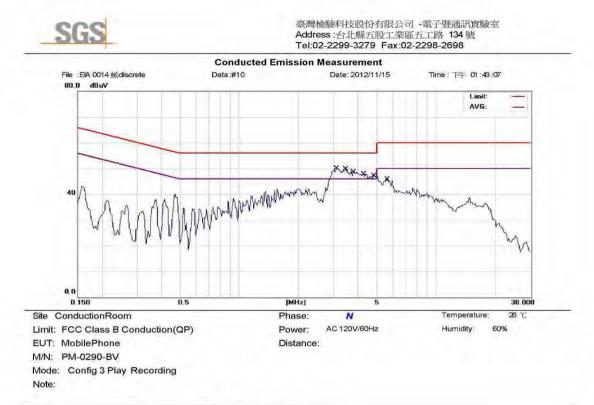
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No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	сB	Detector	Comment
1		3.1314	44.00	0.34	44.34	56.00	-11.66	QP	
2	*	3.1314	35.20	0.34	35.54	46.00	-10.46	AVG	
3		3.4872	43.20	0.34	43.54	56.00	-12.46	QP	
4		3.4872	34.90	0.34	35.24	46.00	-10.76	AVG	
5		3.8157	42.30	0.35	42.65	56.00	-13.35	QP	
6		3.8157	34.00	0.35	34.35	46.00	-11.65	AVG	
7		4.2732	41.50	0.35	41.85	56.00	-14.15	QP	
8	1	4.2732	33.50	0.35	33.85	46.00	-12.15	AVG	
9		4.8738	40.00	0.37	40.37	56.00	-15.63	QP	
10		4.8738	32.00	0.37	32.37	46.00	-13.63	AVG	
11		5.6725	39.00	0.38	39.38	60.00	-20.62	QP	
12		5.6725	29.80	0.38	30.18	50.00	-19.82	AVG	

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

ReferenceOnly

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Config 3 MP3 Mode:



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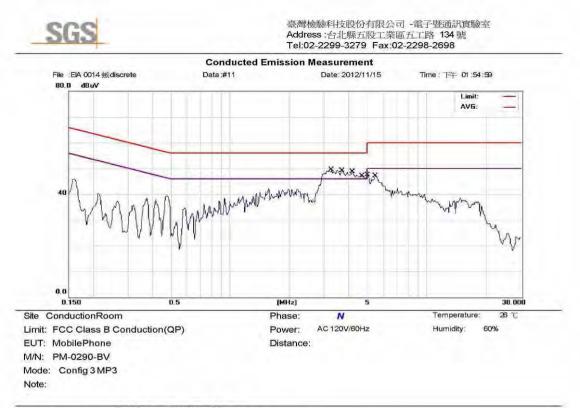
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Ν



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		3.2644	42.80	0.34	43.14	56.00	-12.86	QP	
2	*	3.2644	34.90	0.34	35.24	46.00	-10.76	AVG	
3		3.6945	42.50	0.35	42.85	56.00	-13.15	QP	
4		3.6945	34.10	0.35	34.45	46.00	-11.55	AVG	
5	-	4.1715	41.80	0.35	42.15	56.00	-13.85	QP	
6		4.1715	33.30	0.35	33.65	46.00	-12.35	AVG	
7		4.6681	40.50	0.37	40.87	56.00	-15.13	QP	
8	1	4.6681	32.20	0.37	32.57	46.00	-13.43	AVG	
9		5.0000	39.90	0.37	40.27	56.00	-15.73	QP	
10		5.0000	31.70	0.37	32.07	46.00	-13.93	AVG	
11		5.4692	39.30	0.38	39.68	60.00	-20.32	QP	
12		5.4692	30.20	0.38	30.58	50.00	-19.42	AVG	

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

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2.5 Test of Radiated Emission

2.5.1 Test Instruments

Below 1G & Above 1G

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
Site NSA	Chamost	96611 Chamber	N/A	Dec. 30, 2011	Dec. 29, 2012
Site VSWR	Chamost	96611 Chamber	N/A	Dec. 30, 2011	Dec. 29, 2012
EMI Test Receiver	ROHDE&SCHWARZ	ESCI 7	100760	May 25, 2012	May 24, 2013
Spectrum Analyzer	Agilent	E4440A	MY45304525	Mar. 17, 2012	Mar. 16, 2014
RF-Amplifier (0.1-1300MHz)	HP	8447D	1937A02774	Nov. 26, 2012	Nov. 25, 2013
RF-Amplifier (1-26.5GHz)	HP	8449B	3008A00578	Nov. 26, 2012	Nov. 25, 2013
RF-Amplifier (26-40GHz)	EM Electronics Corp.	EM26400	N/A	Dec. 28, 2011	Dec. 27, 2012
Coaxial Cables (For 9kHz~3GHz)	HUBER SUHNER	SUCCOFLEX 104PEA	N/A	Nov. 26, 2012	Nov. 25, 2013
Coaxial Cables (For 9kHz~26.5GHz)	HUBER SUHNER	SUCCOFLEX 104PEA	N/A	Nov. 26, 2012	Nov. 25, 2013
Re Cables (96611) (For 1~40GHz)	HUBER SUHNER	SUCCOFLEX 102	22962/2	Nov. 26, 2012	Nov. 25, 2013
Re Cables (96611) (For 1~40GHz)	HUBER SUHNER	SUCCOFLEX 102	23051/2	Nov. 26, 2012	Nov. 25, 2013
Antenna Master	MF.	N/A	N/A	N/A	N/A
Turn Table	MF.	N/A	N/A	N/A	N/A
Controller	MF.	3000	MF780208153	N/A	N/A
Broadband Antenna	SCHWAZBECK	VULB9168	VULB9168-298	Nov. 01, 2012	Oct. 31, 2013
Horn Antenna (For 1~18G)	ETS-Lindgren	3117	00135200	Oct. 05, 2012	Oct. 04, 2013
Horn Antenna (For 18~40G)	SCHWAZBECK	BBHA 9170	BBHA9170185	Jul. 11, 2011	Jul. 10, 2013
Software	Farad	EZ-EMC- VER2A1.1(USB)	N/A	N/A	N/A

2.5.2 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory NO.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

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2.5.3 Operating Environment

Temperature : 25 degree C Atmospheric Pressure : 996 mBar Humidity : 60 %RH

2.5.3.1 Uncertainty of Radiated Emission

Expanded uncertainty (k=2) of radiated emission measurement is 3.70dB.(30-1000MHz) Expanded uncertainty (k=2) of radiated emission measurement is 5.34dB.(1-18GHz) Expanded uncertainty (k=2) of radiated emission measurement is 5.63dB.(18-40GHz)

2.5.3.2 Measurement level and Factor calculate method

Factor = Antenna loss + Cable loss + Amplifier Compensate Measurement Level = Reading Level + Factor

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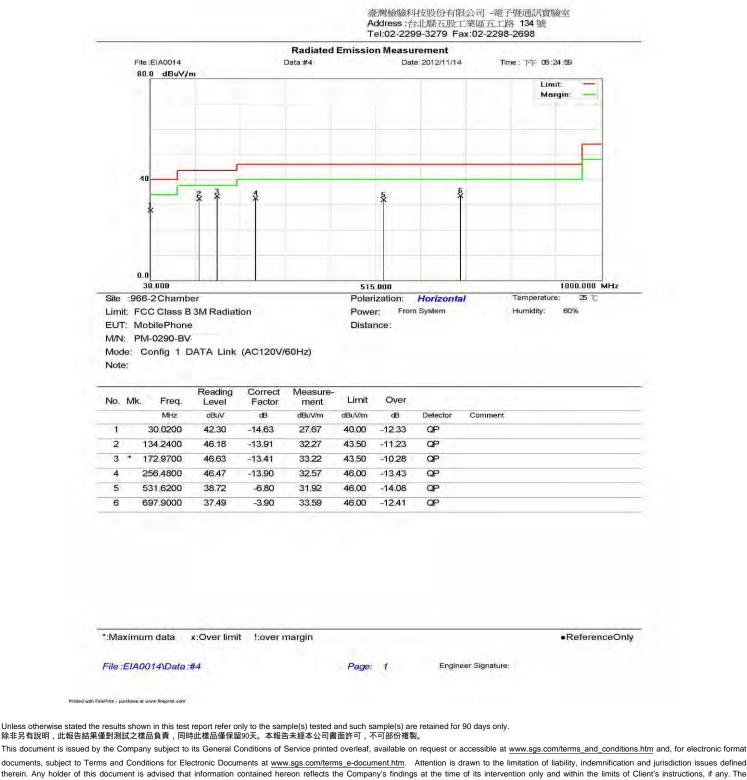


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2.5.4 Measurement Data Below 1G Config 1 Data Link Mode: HORIZONTAL POLARIZATION



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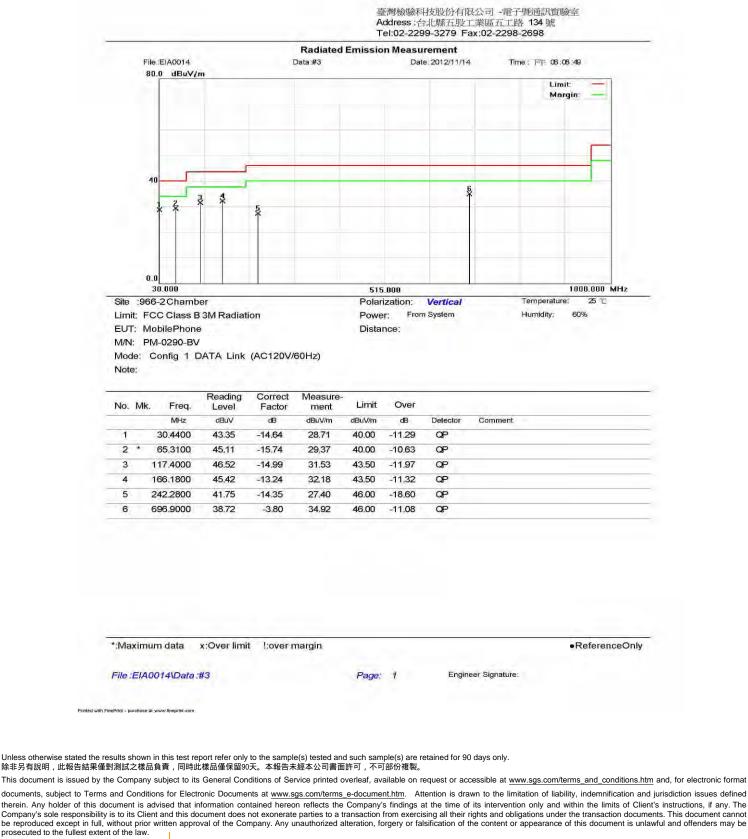
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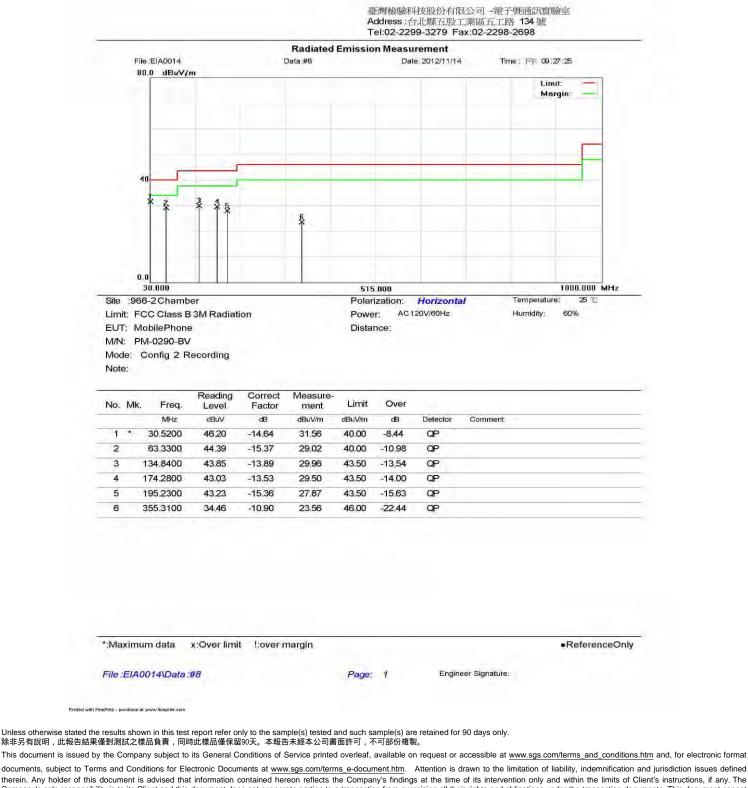


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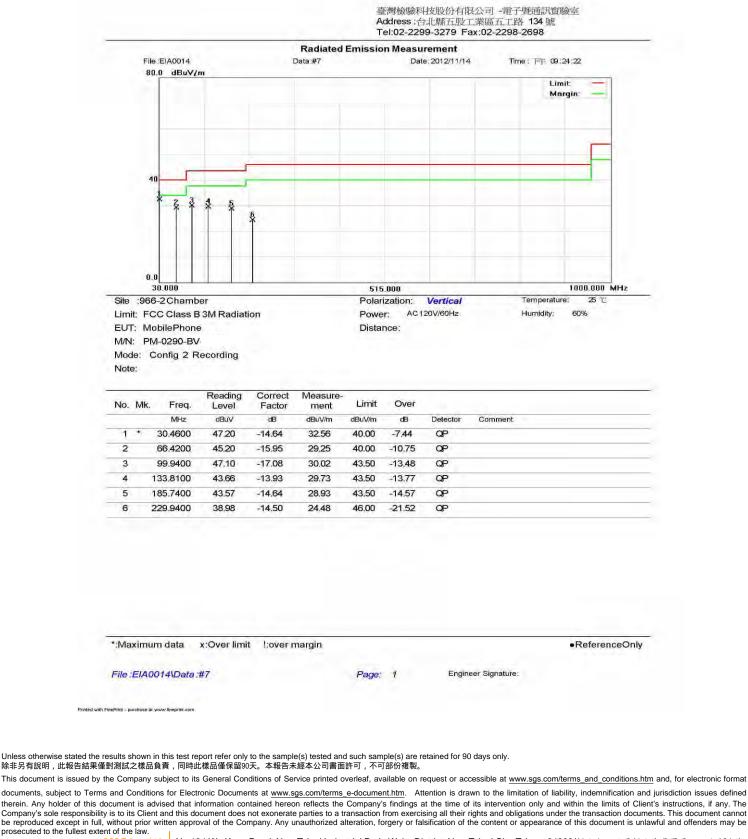
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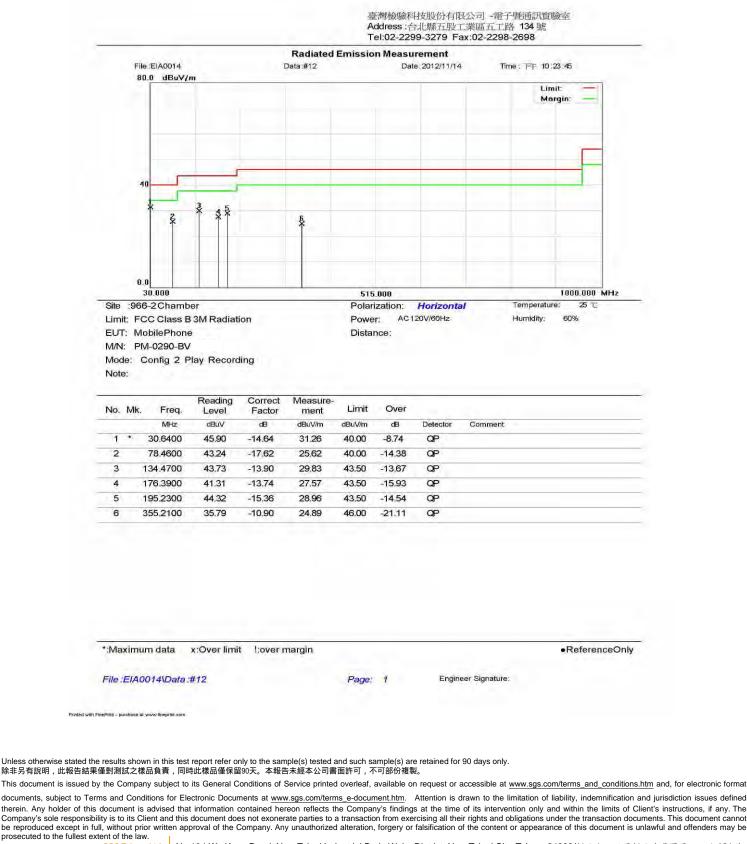
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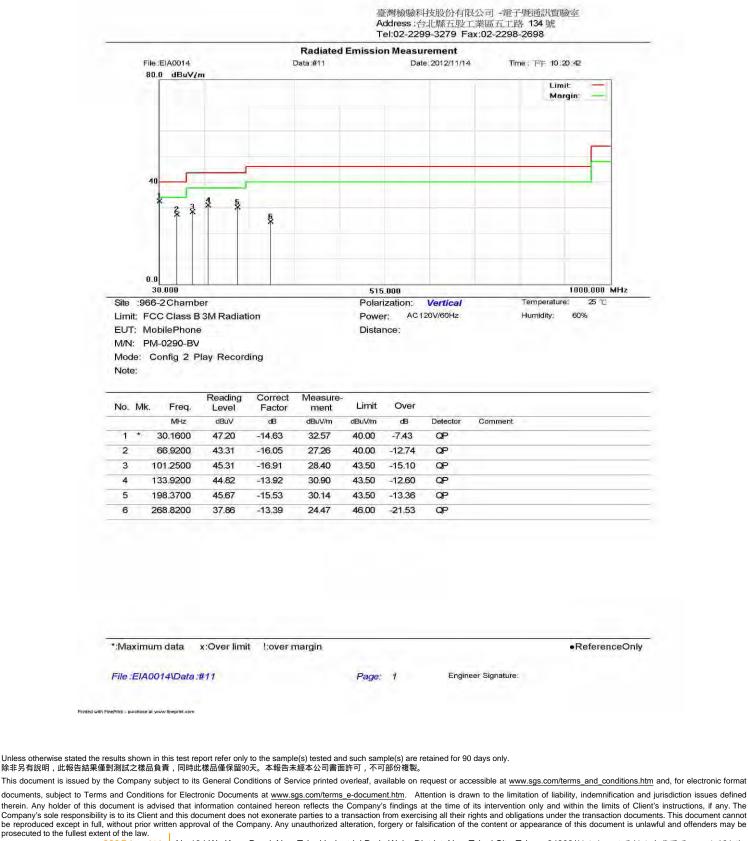
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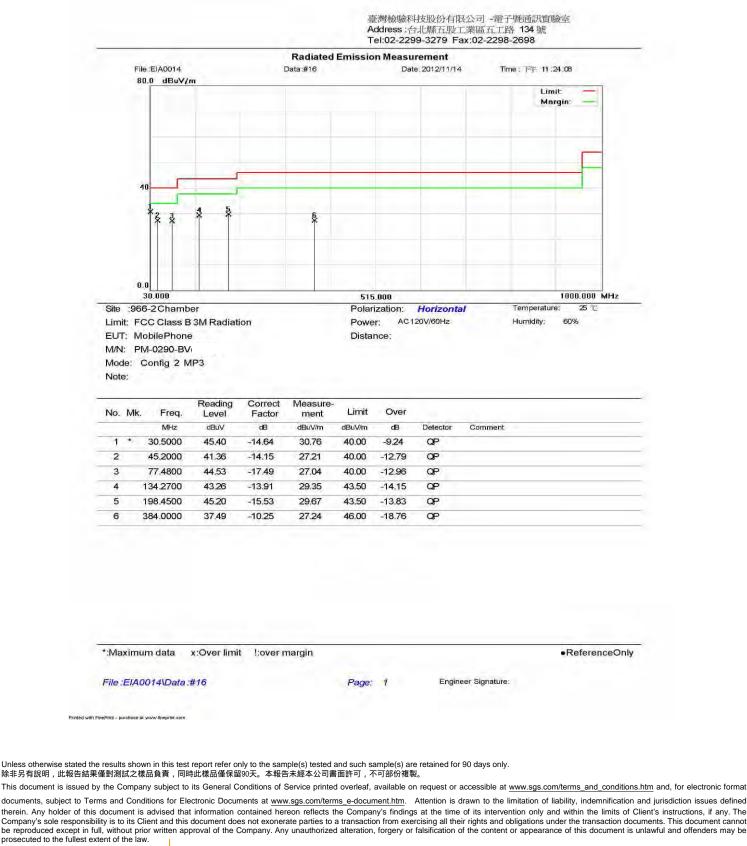
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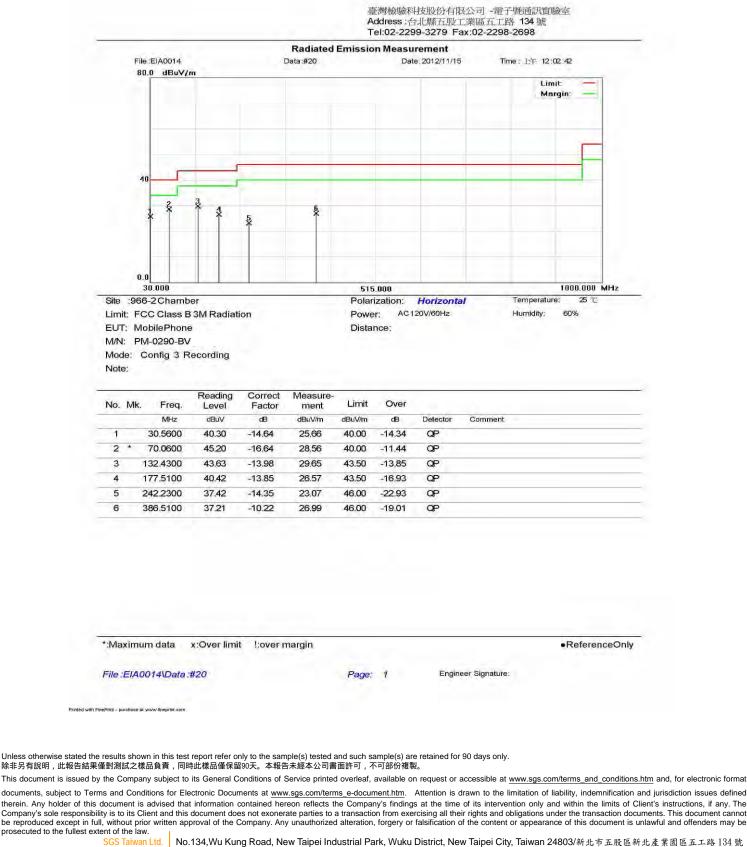


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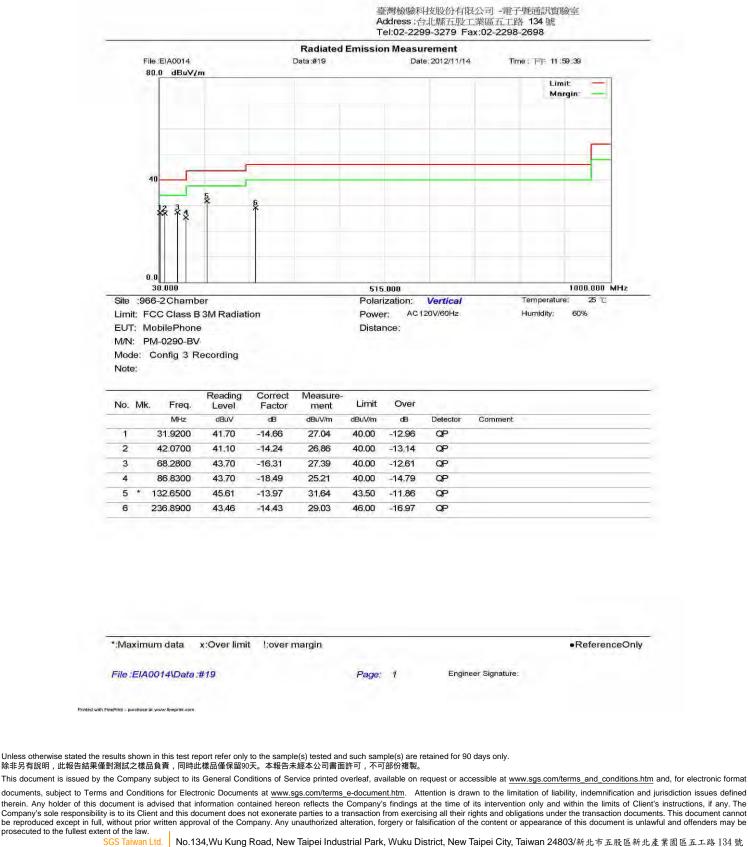


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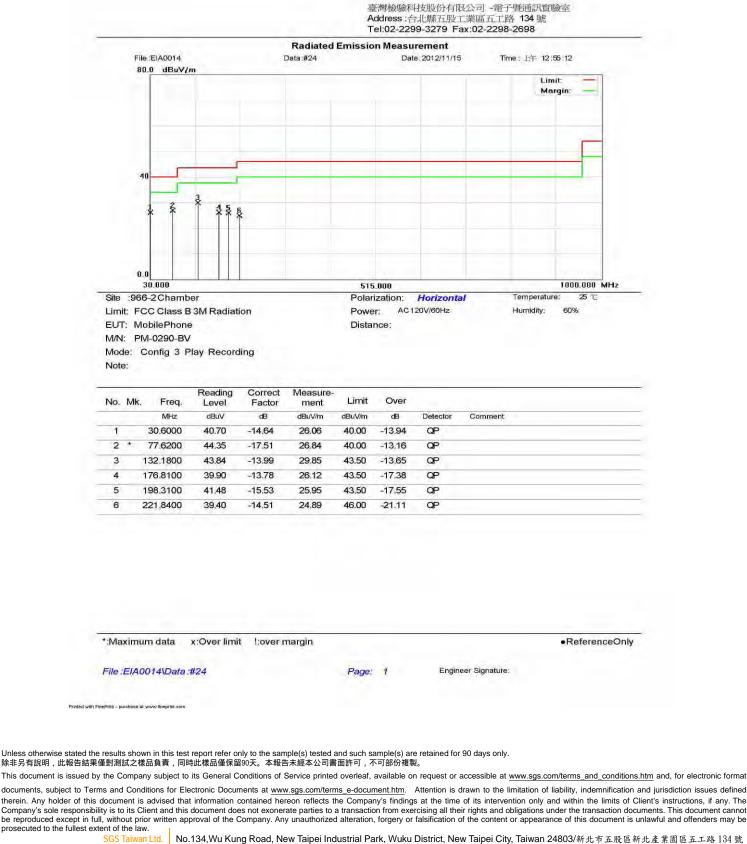


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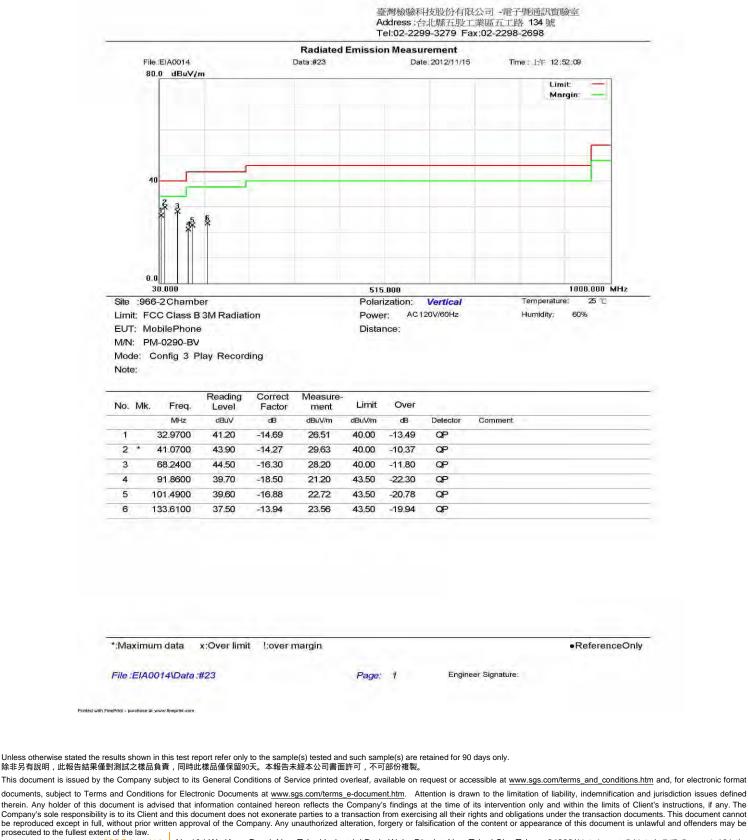
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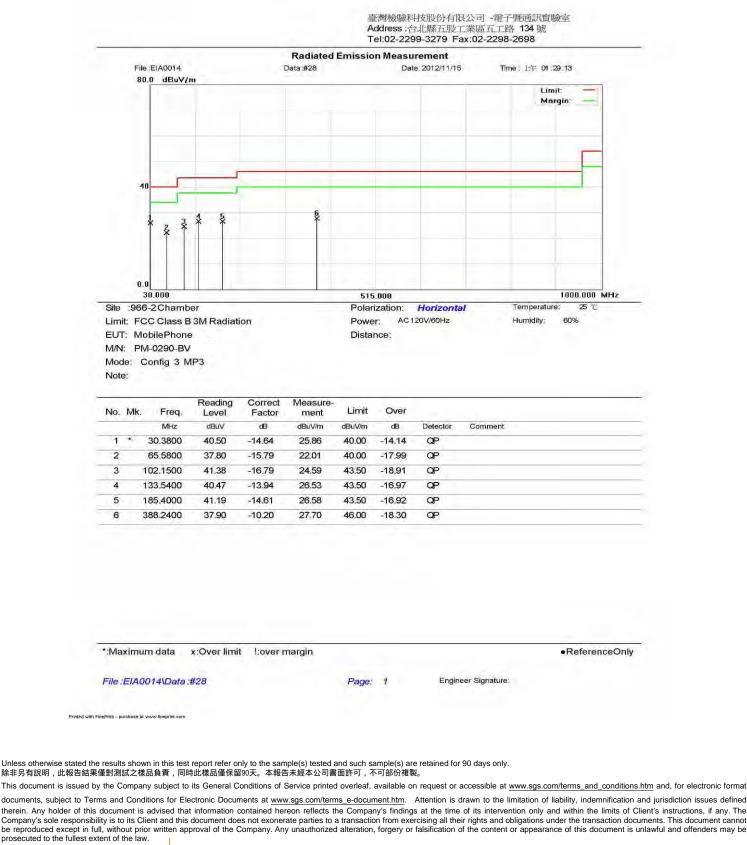
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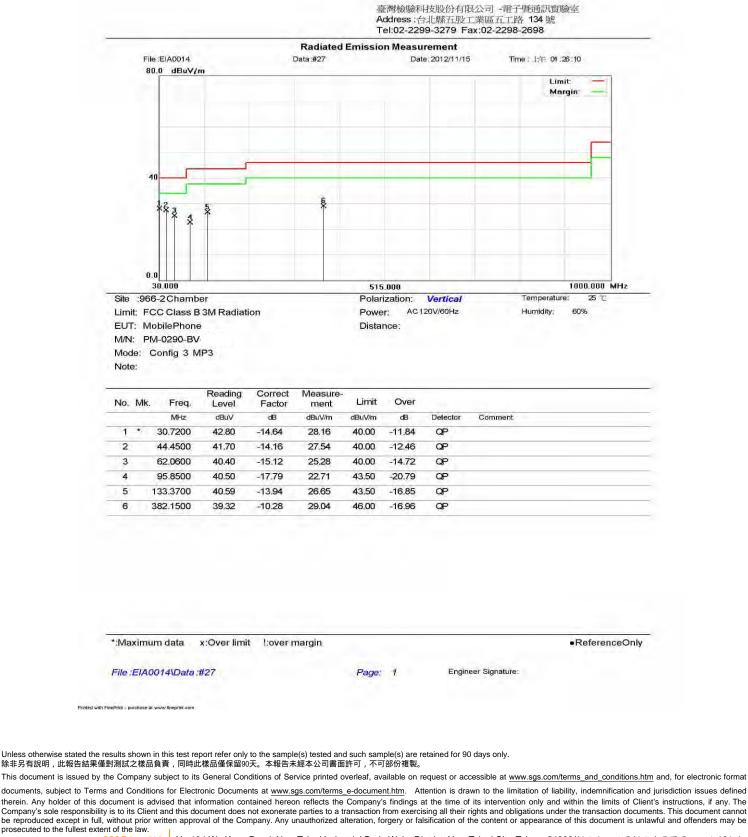
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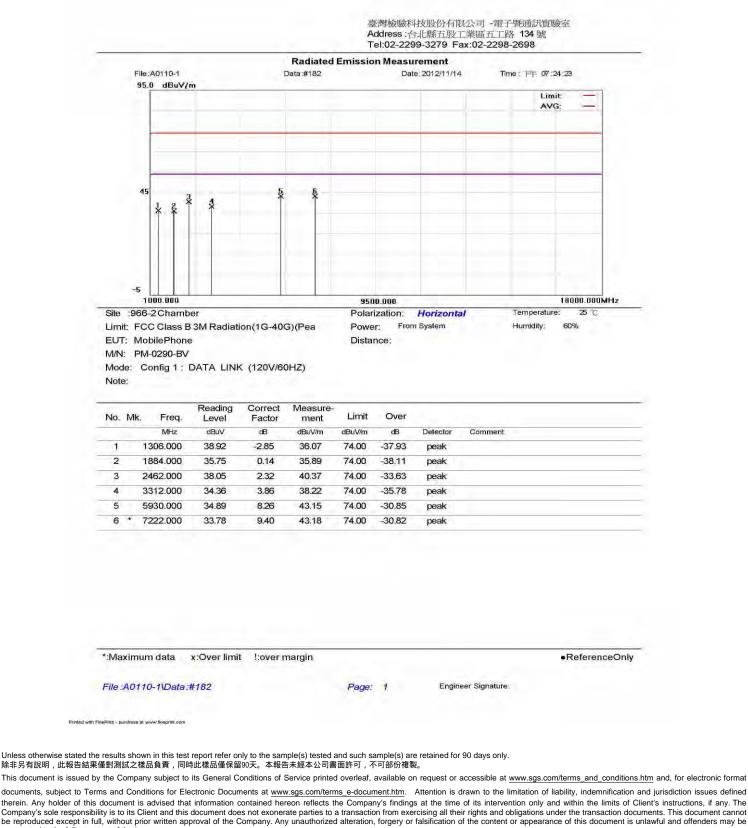
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Above 1G – 1~18G **Config 1 Data Link Mode:** HORIZONTAL POLARIZATION



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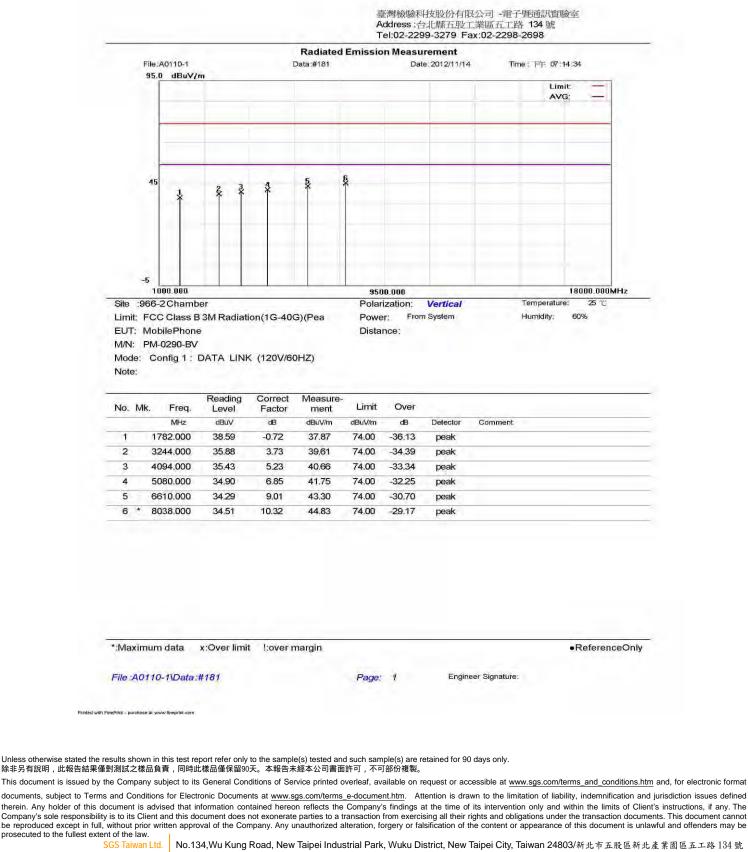


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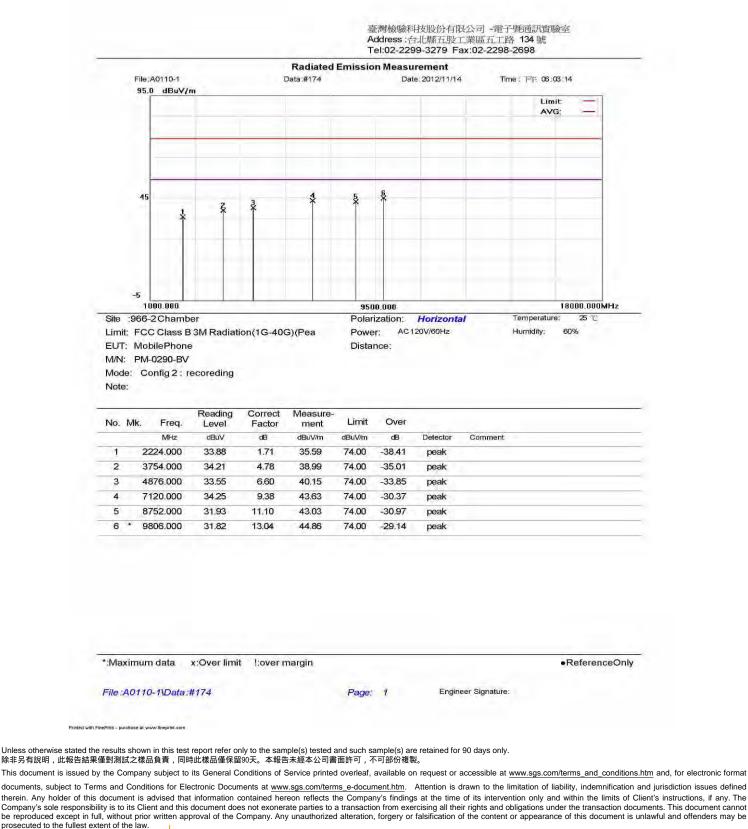
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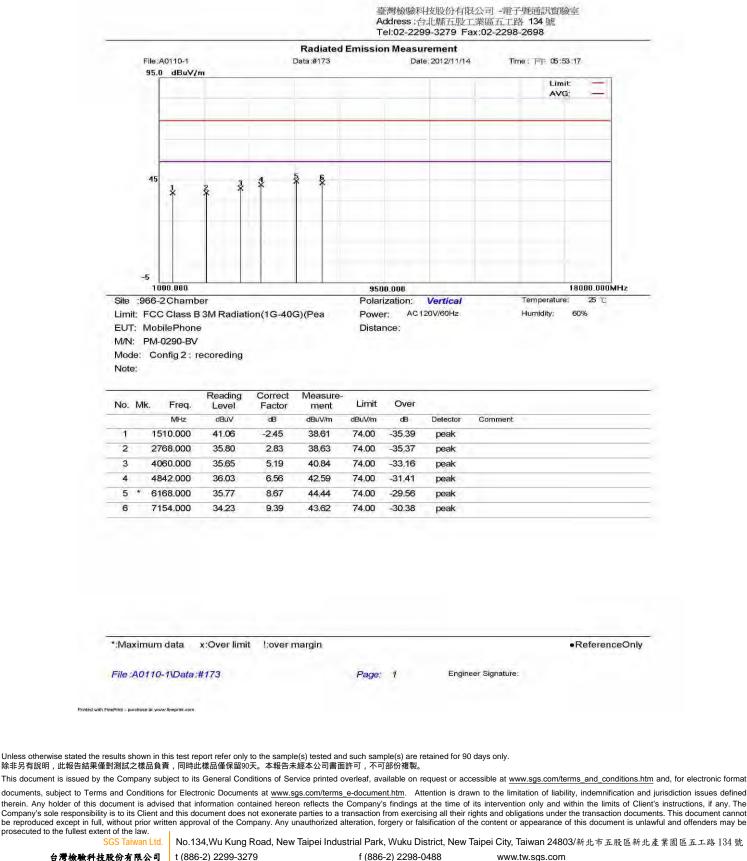


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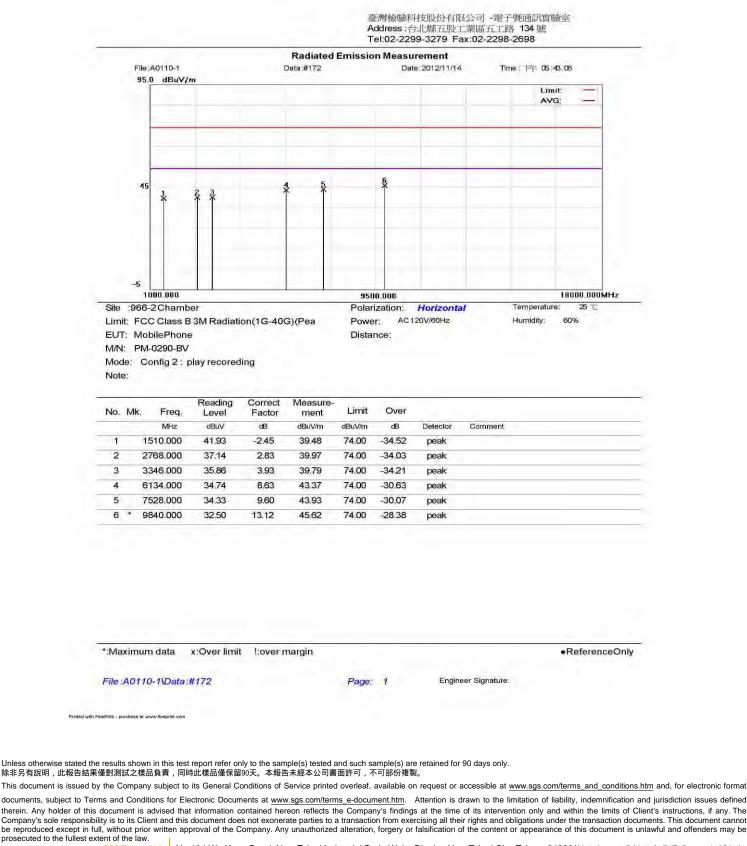
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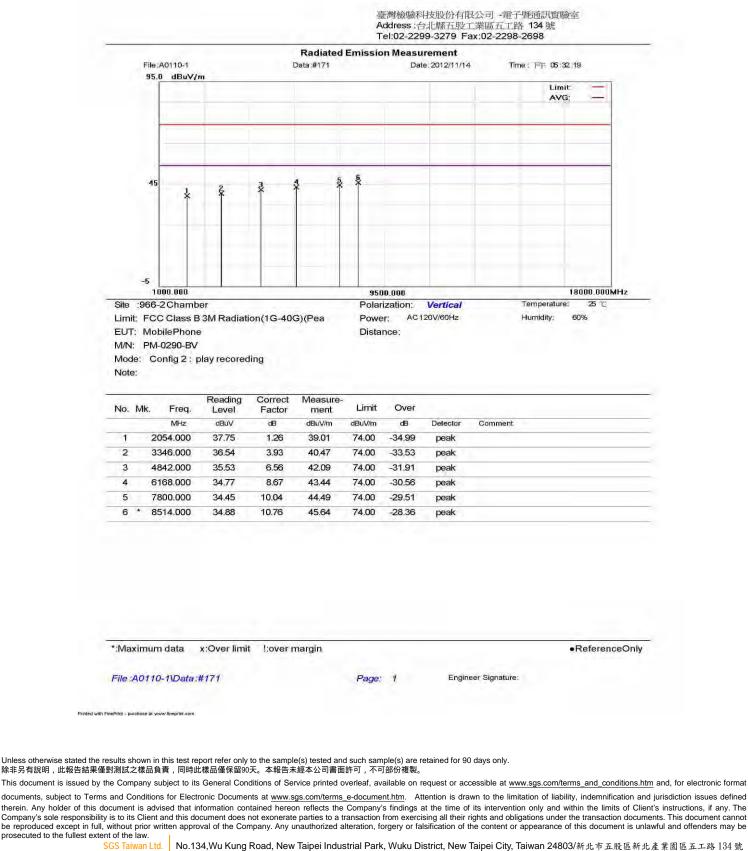


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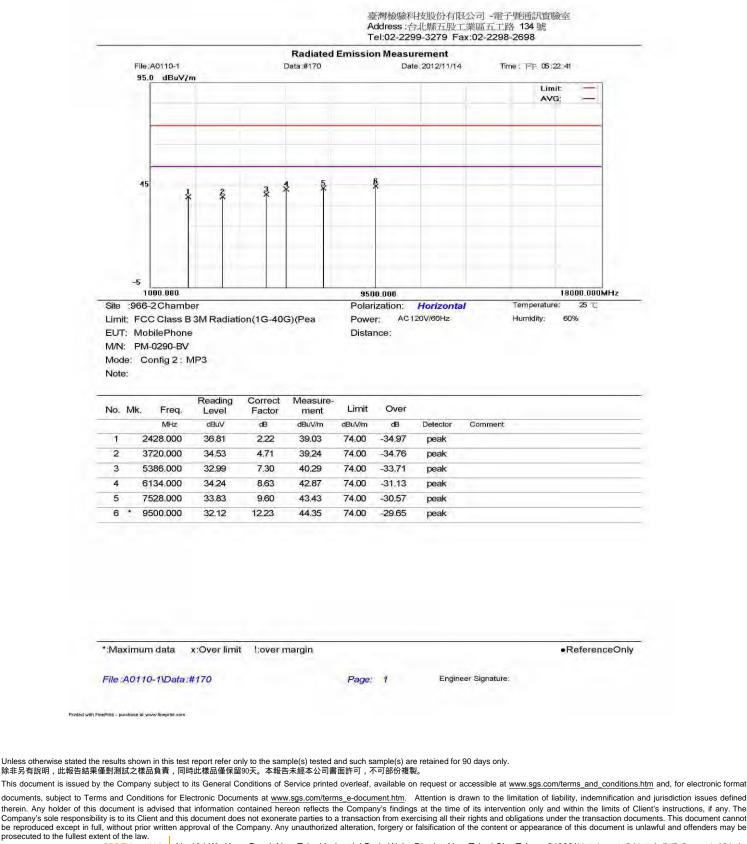
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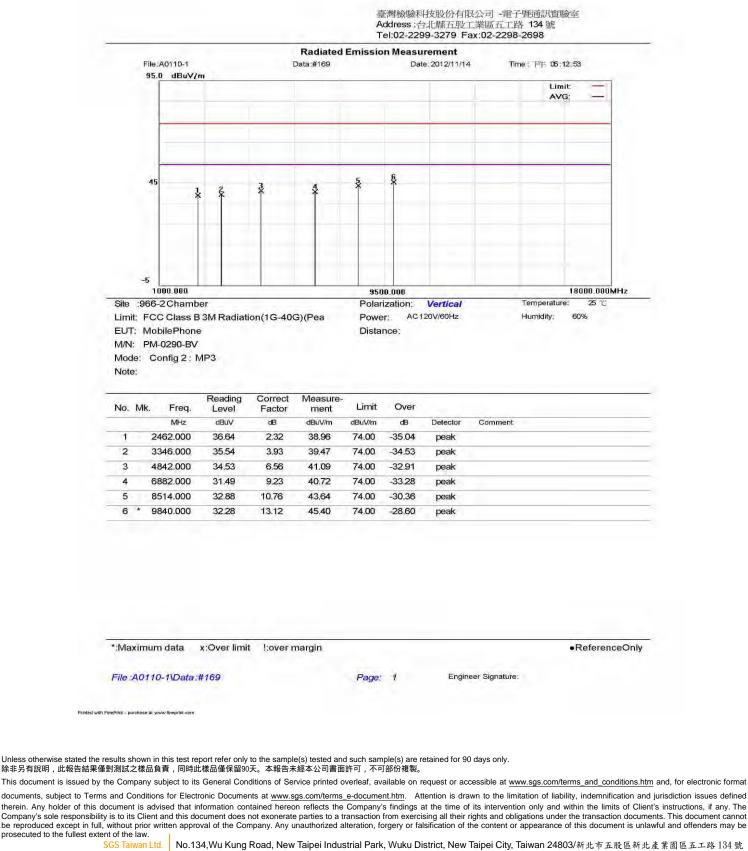


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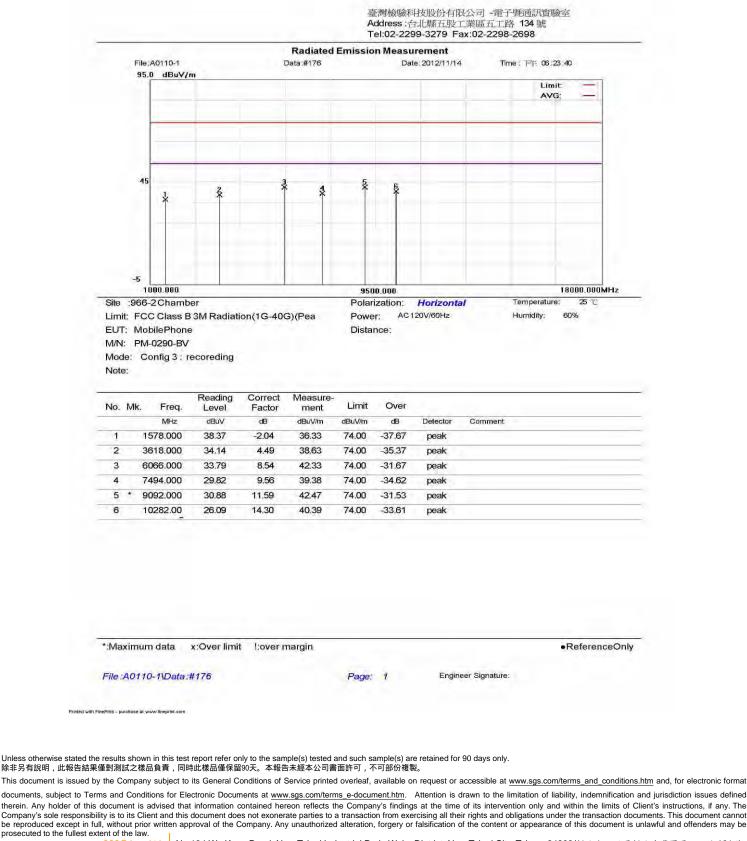
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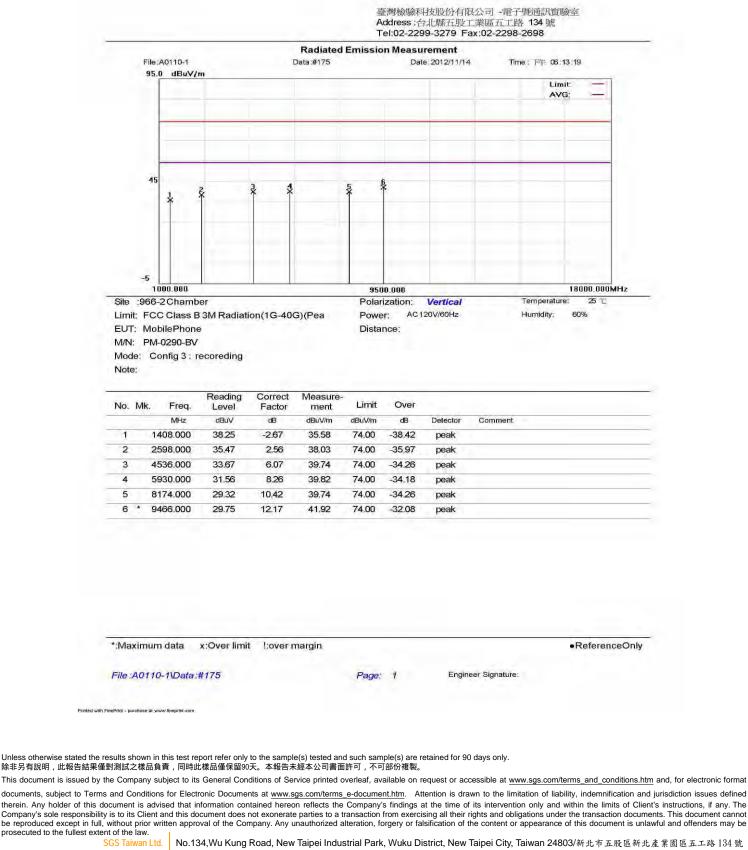


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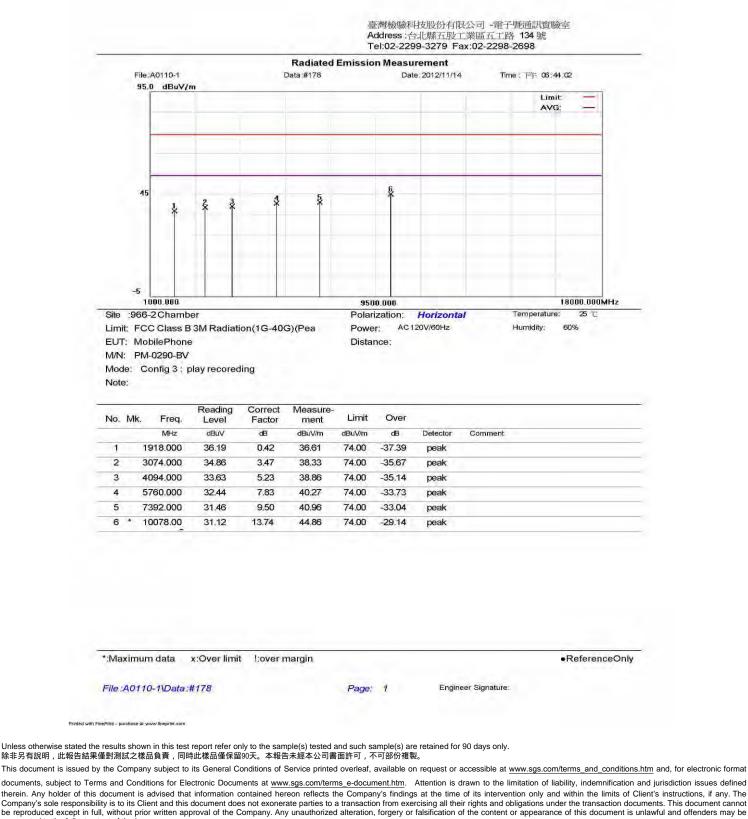
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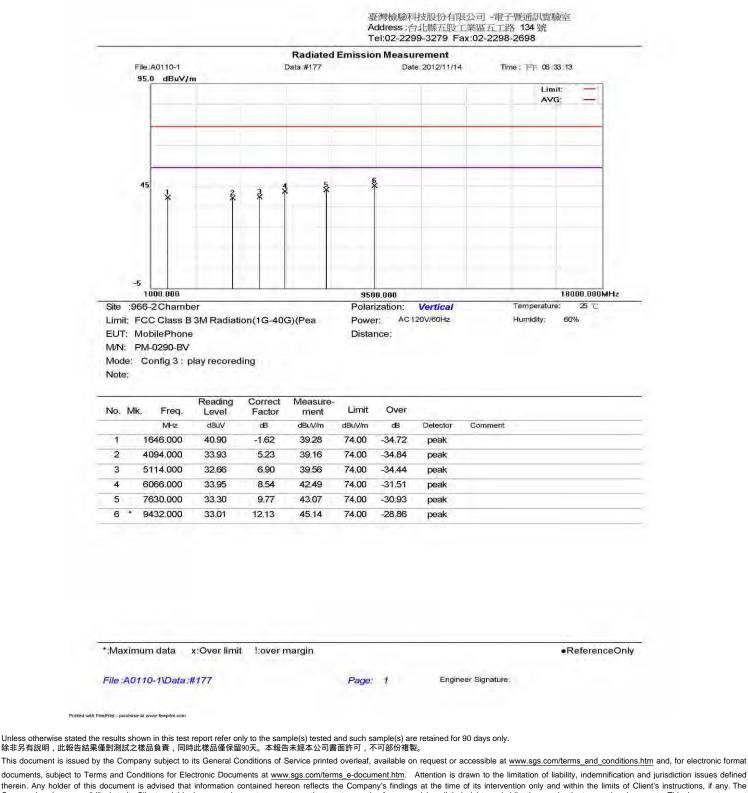


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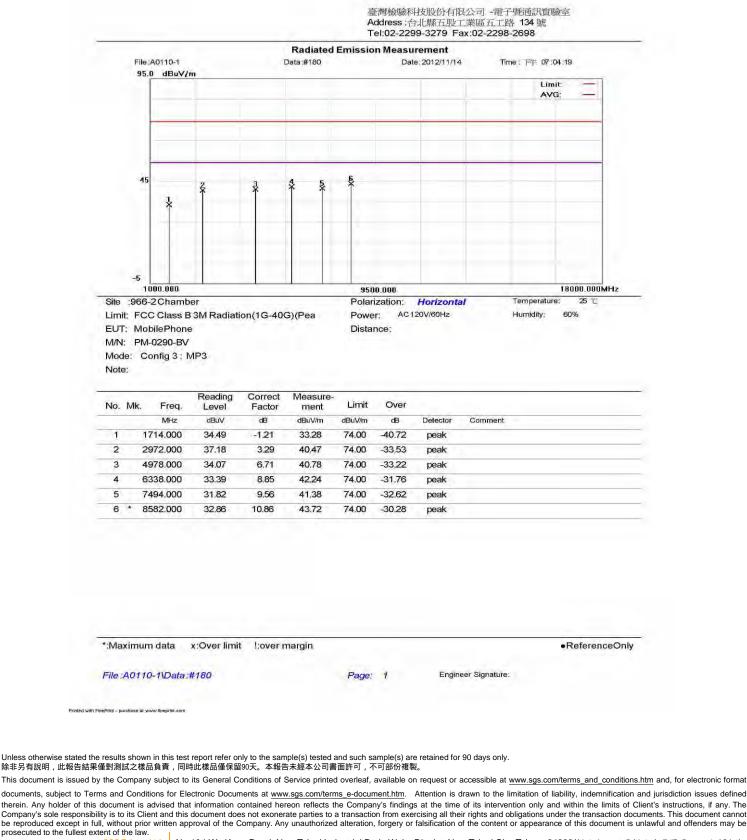
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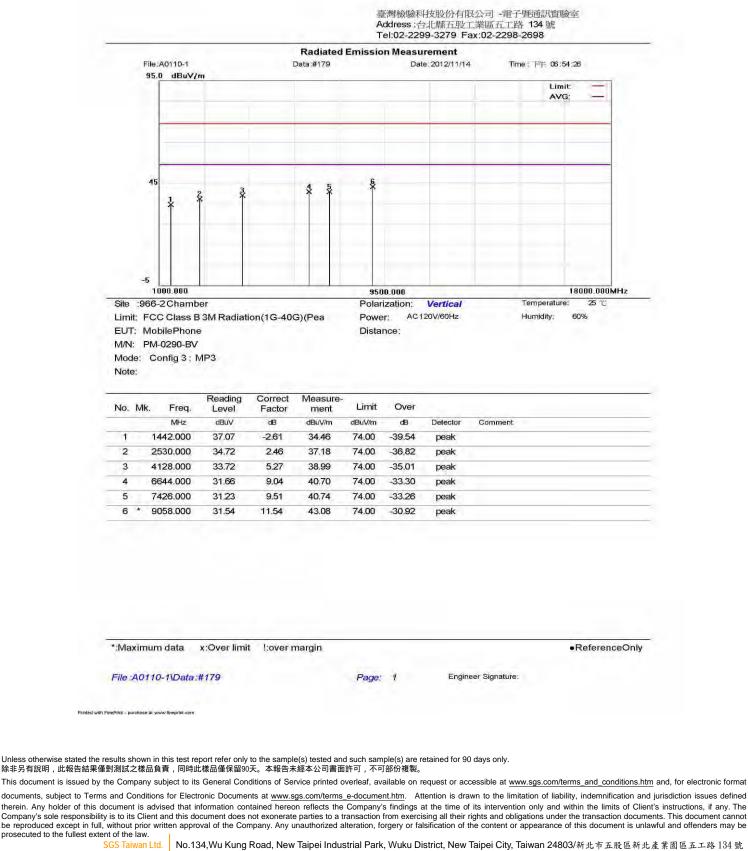


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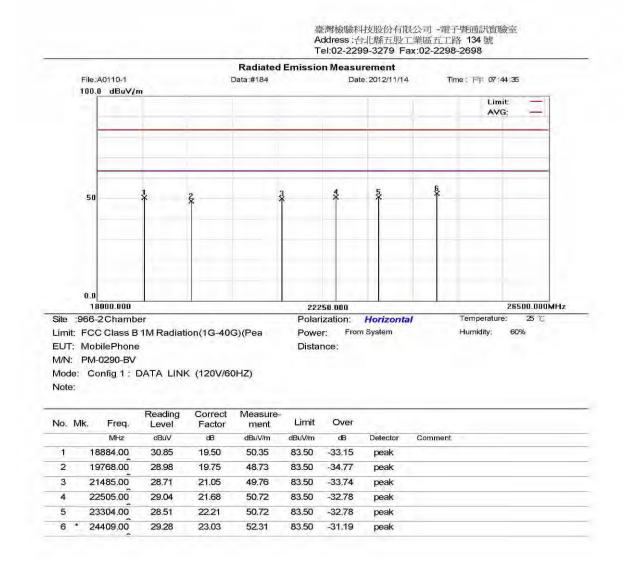
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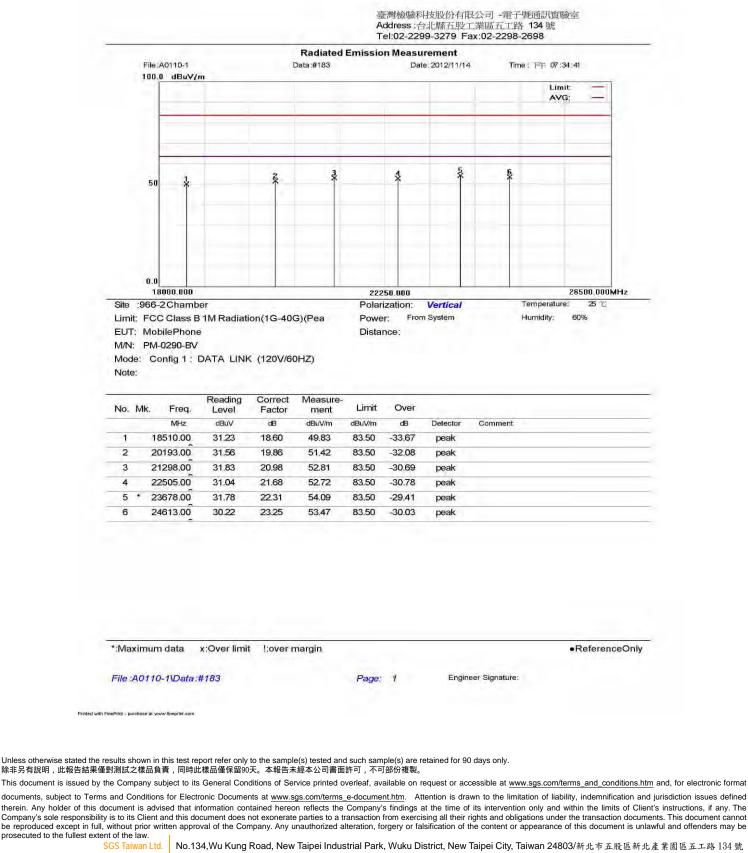


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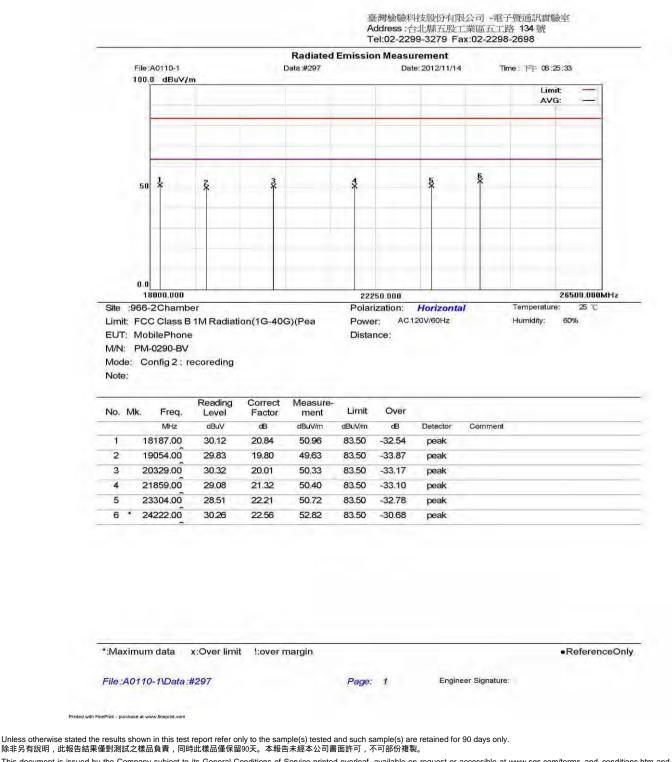
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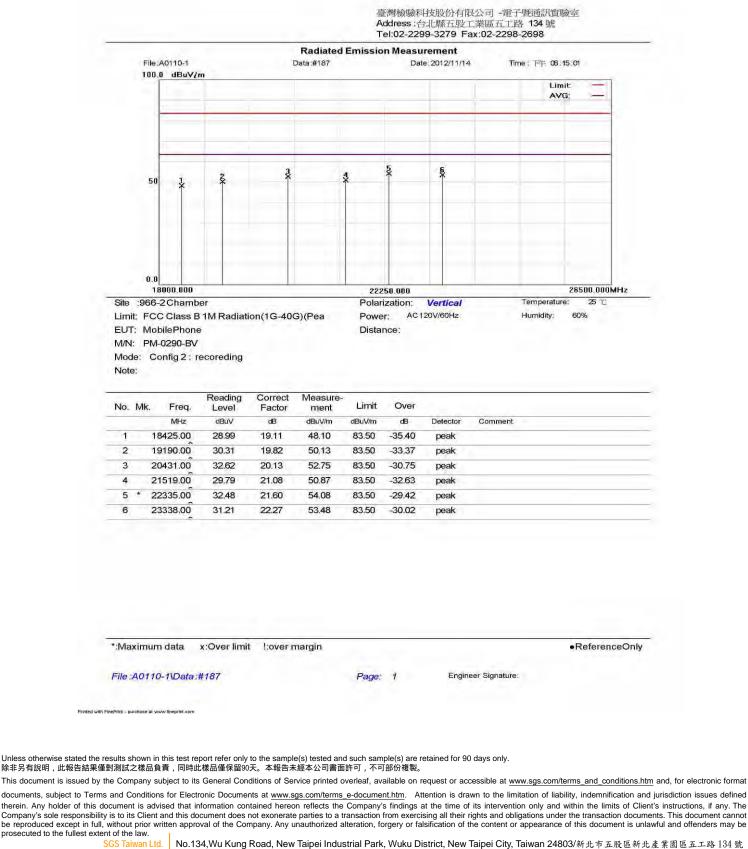


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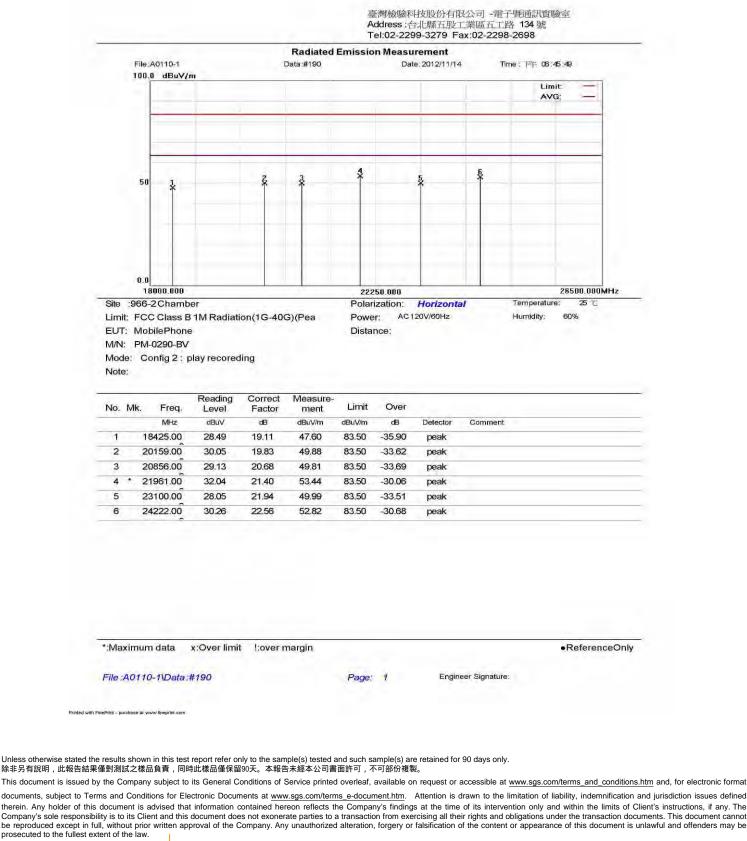


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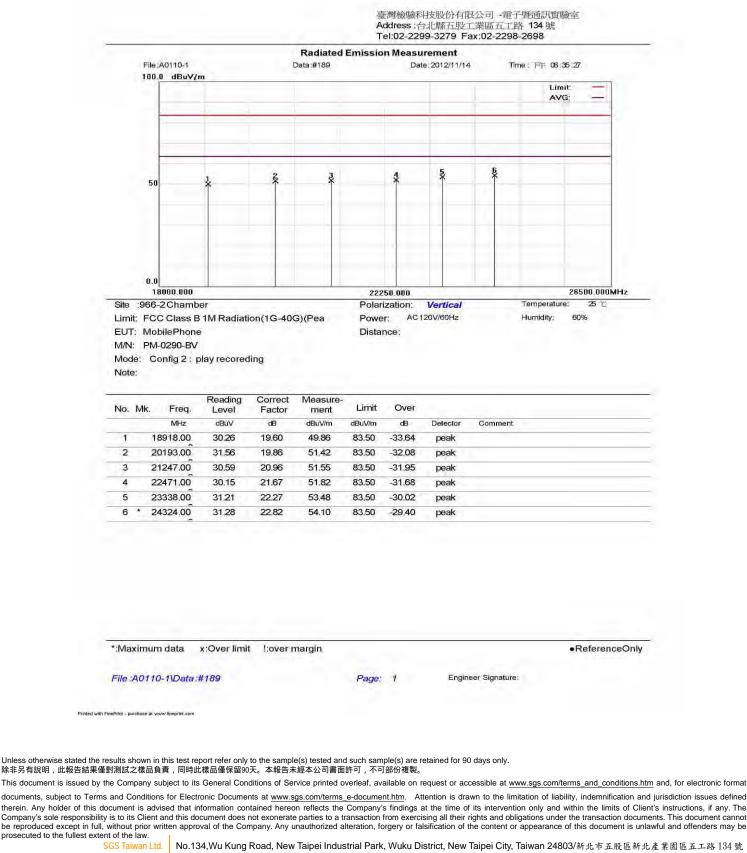


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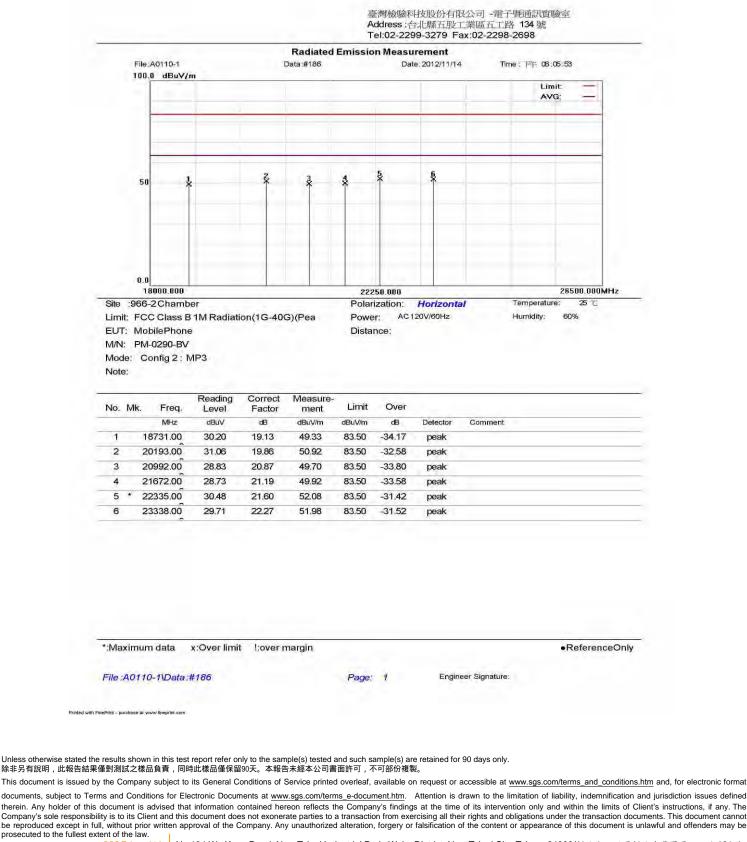
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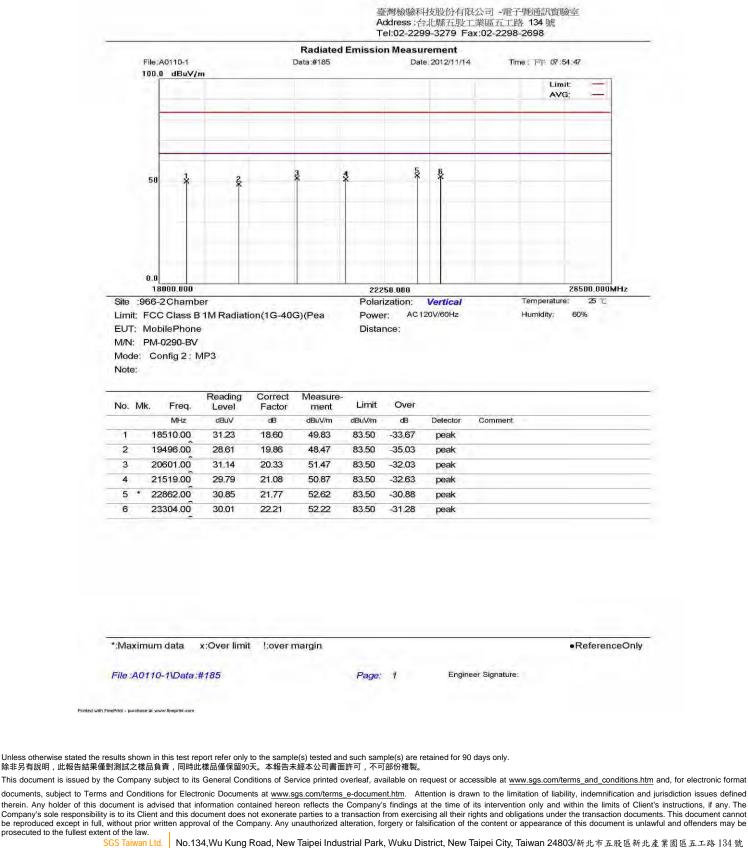


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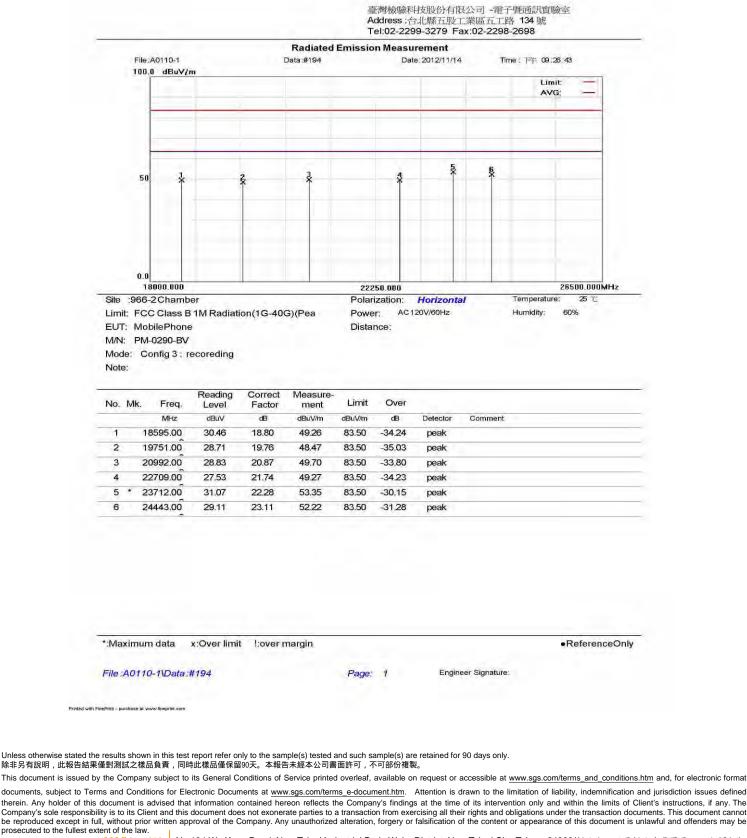
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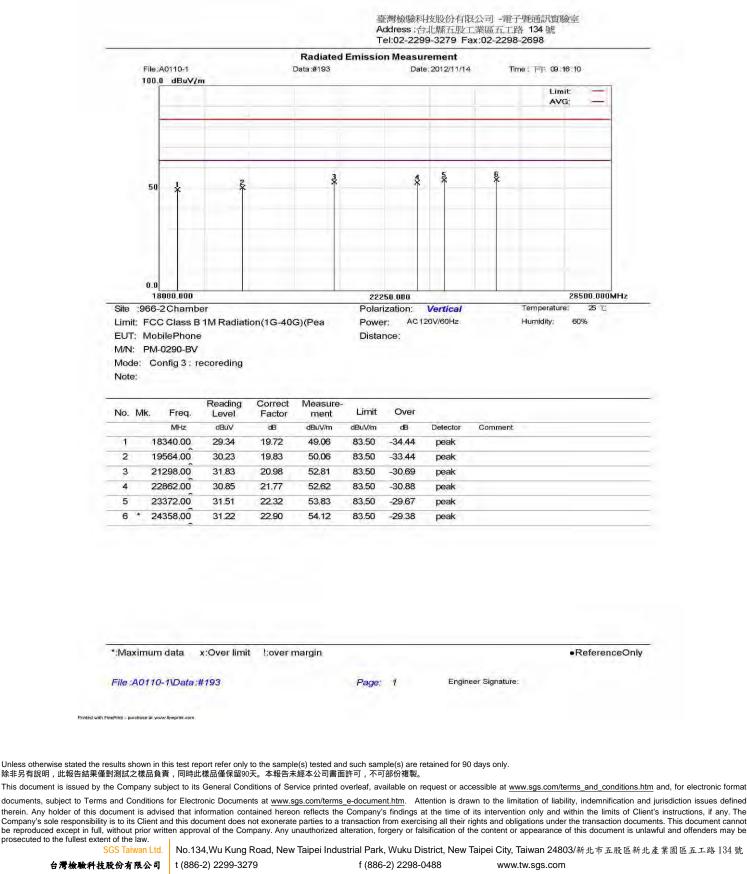


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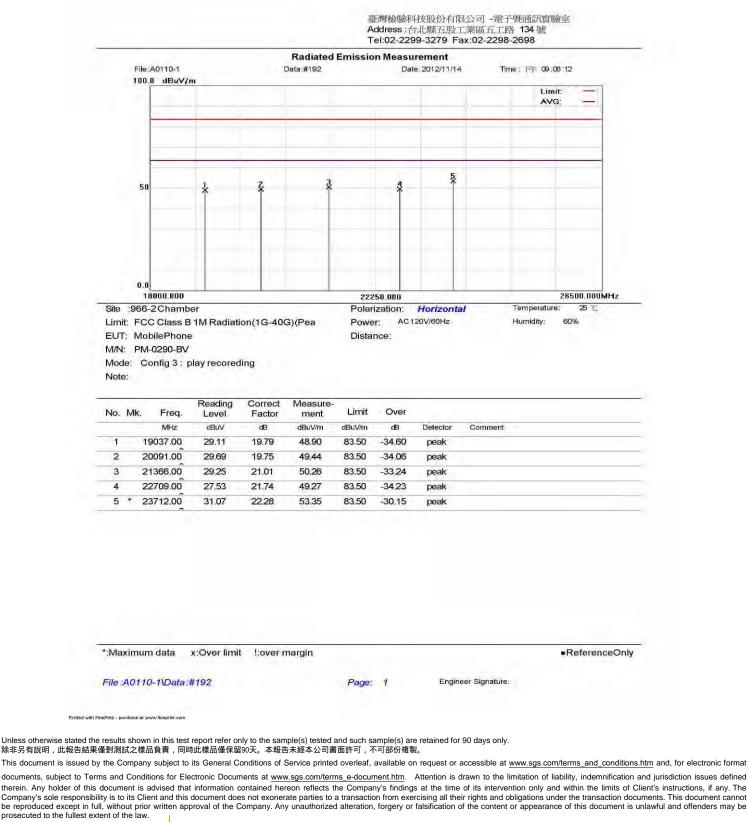


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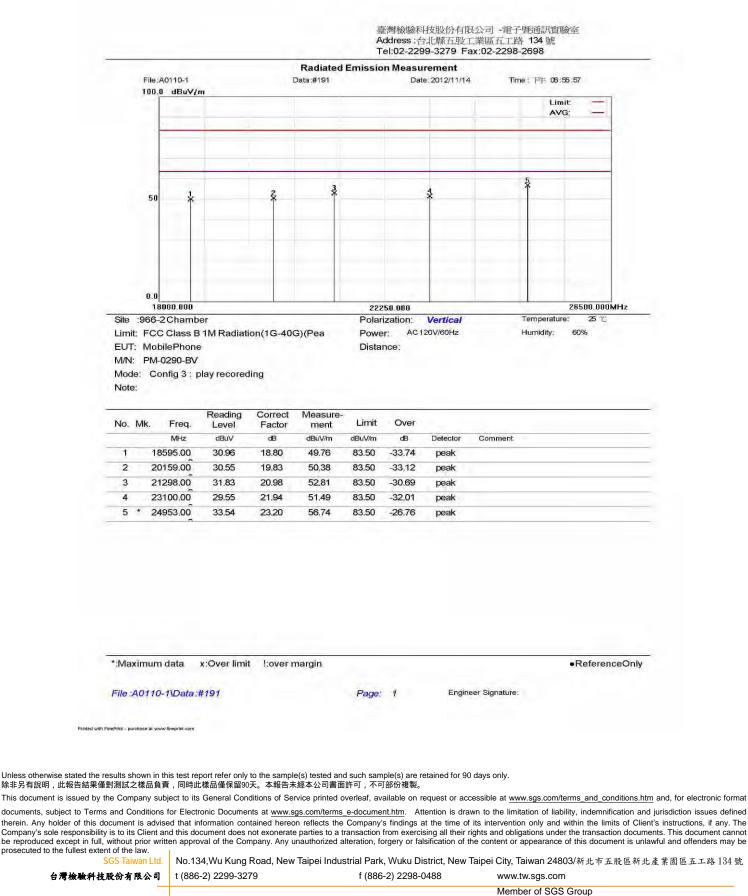


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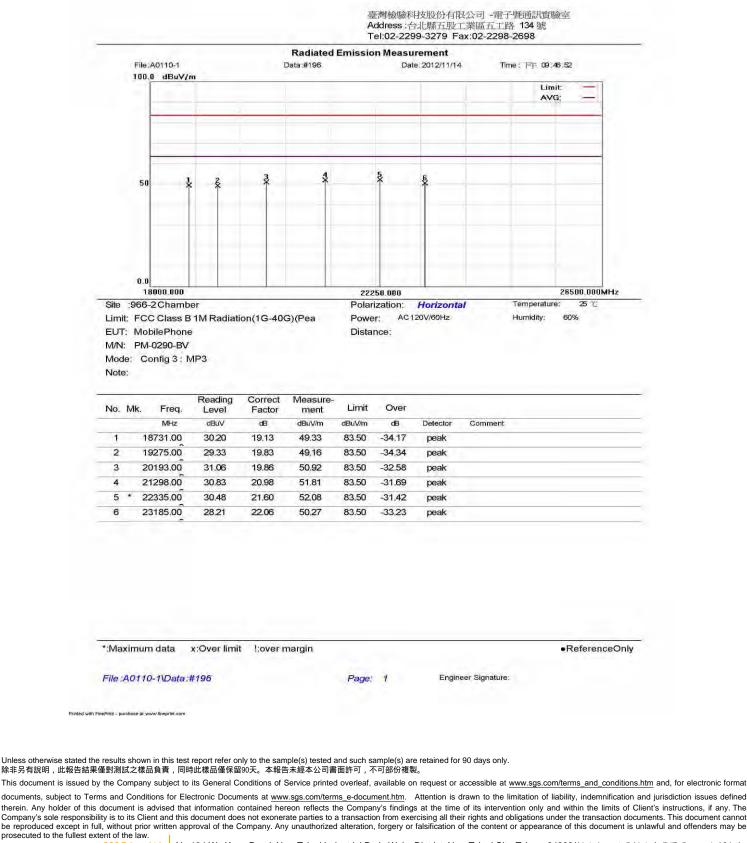
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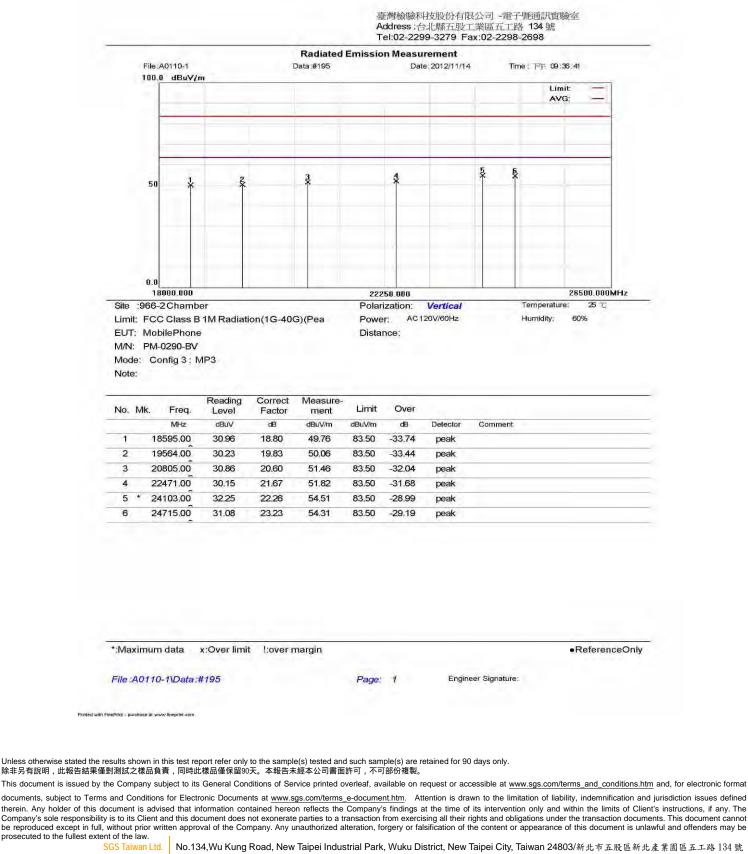


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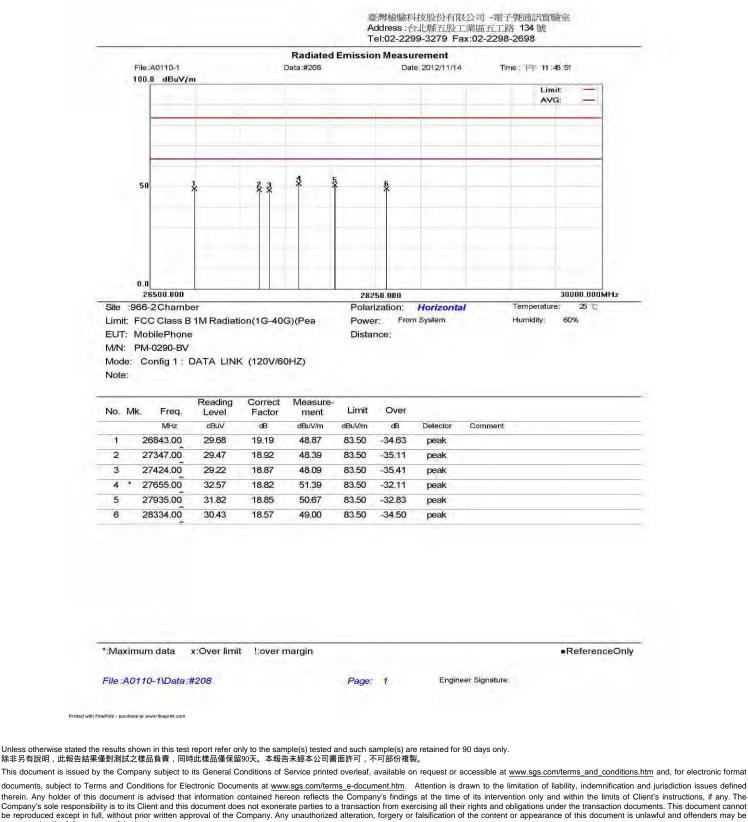
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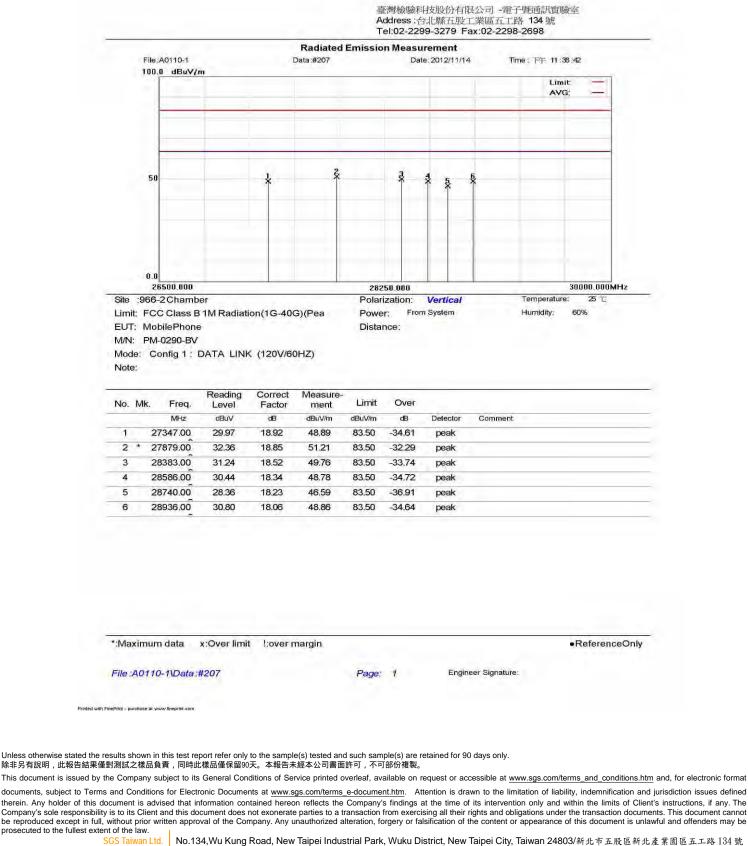


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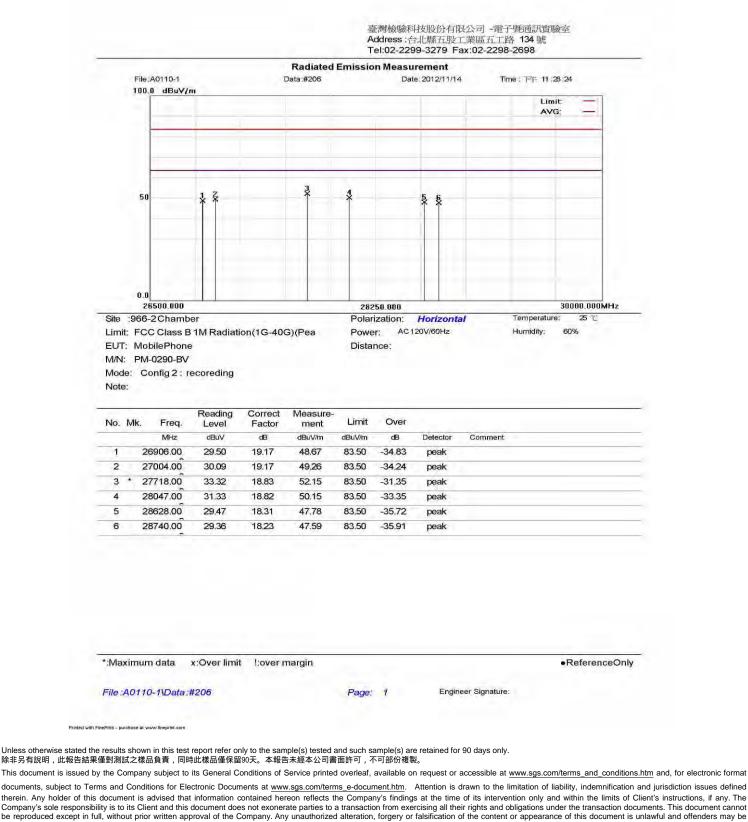
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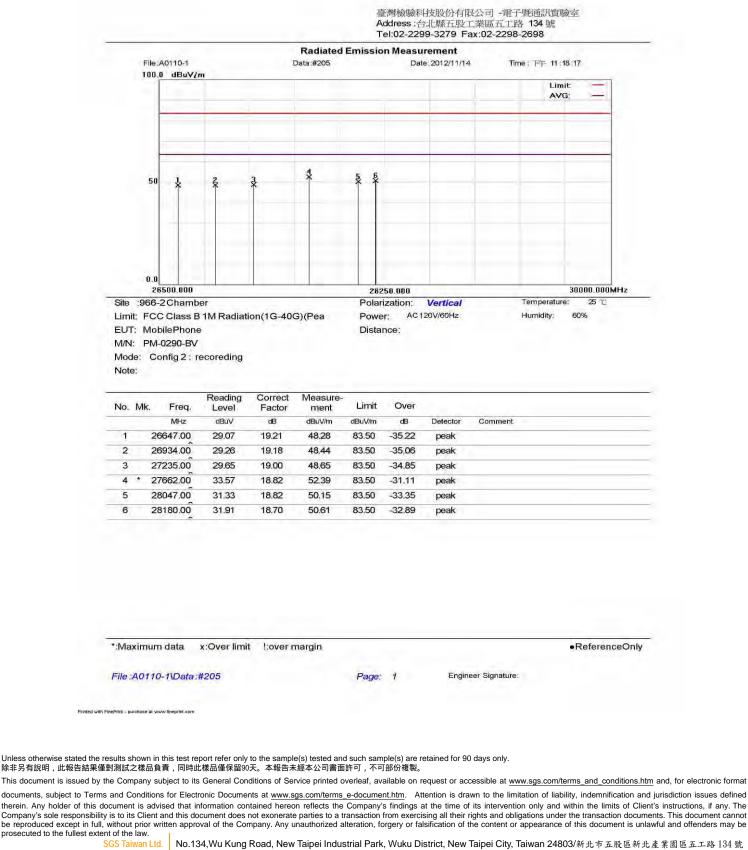


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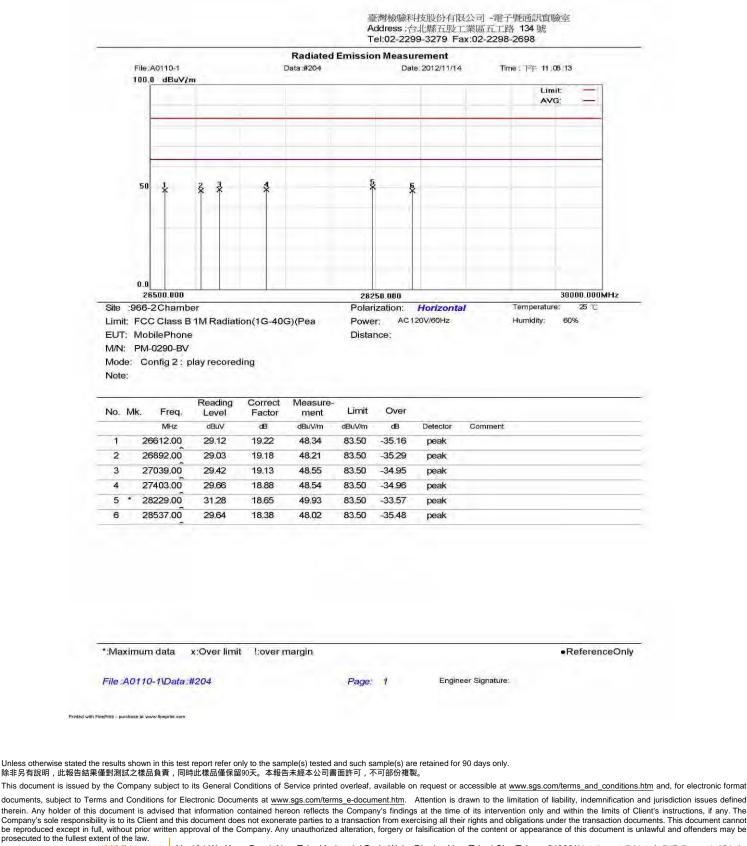
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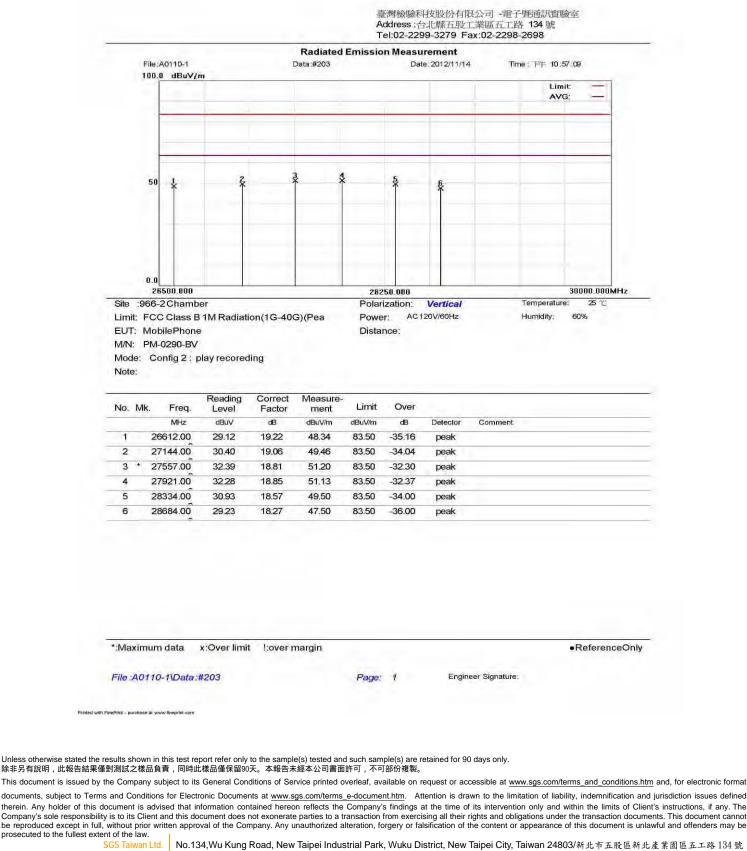


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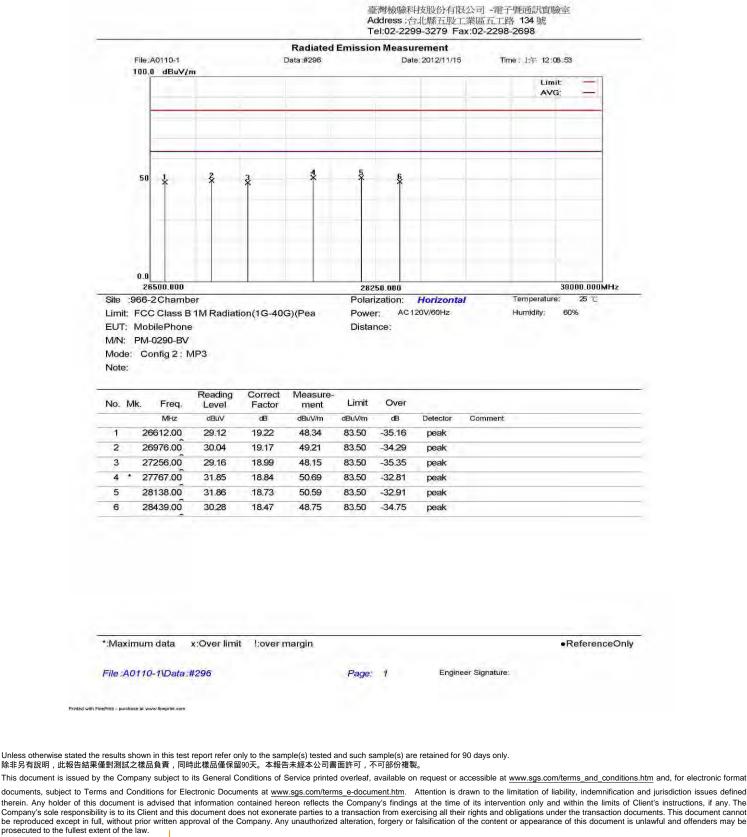
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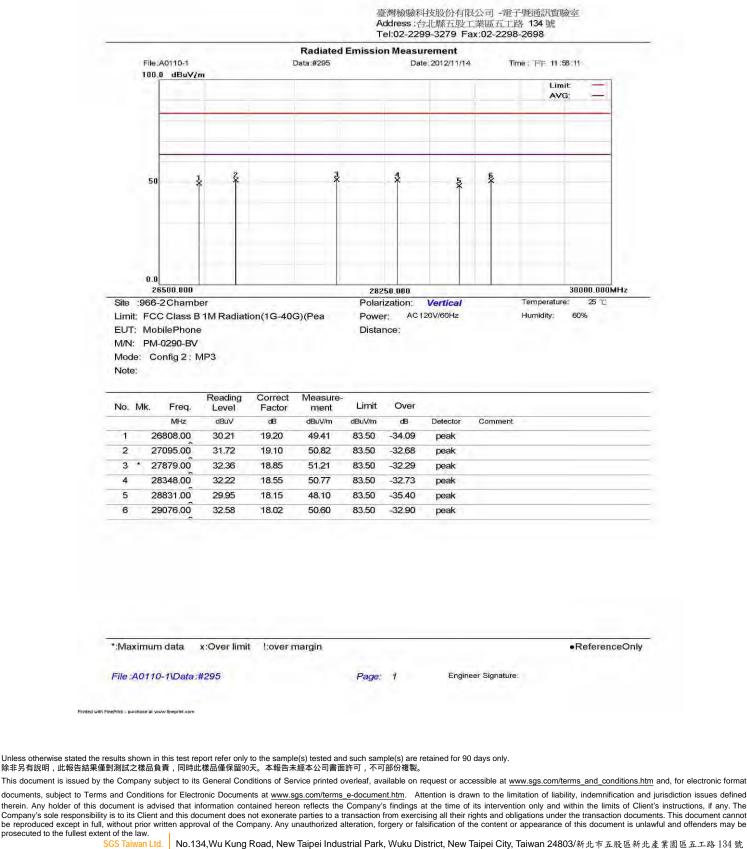


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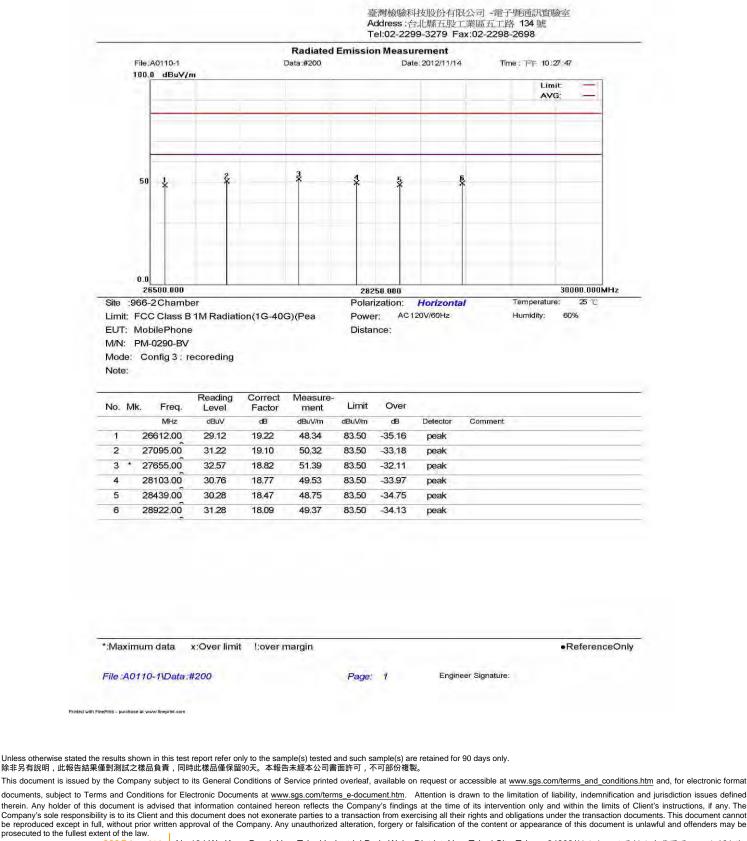
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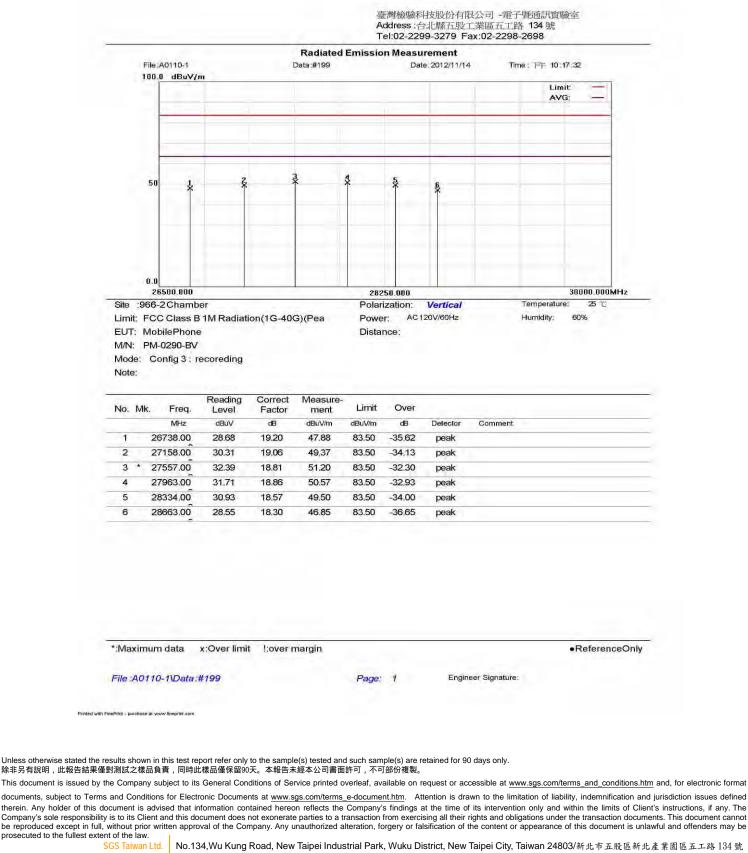


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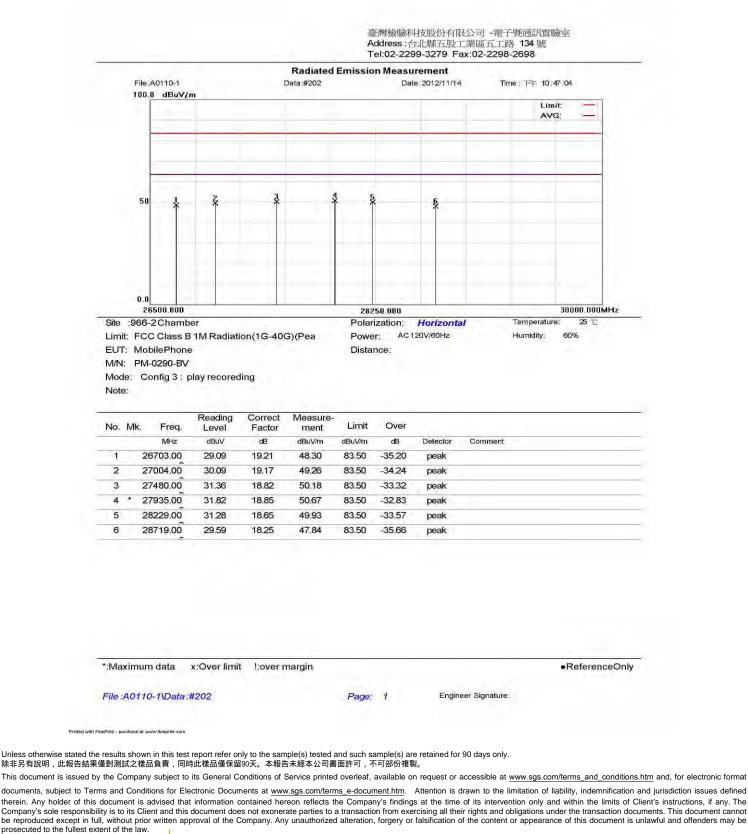
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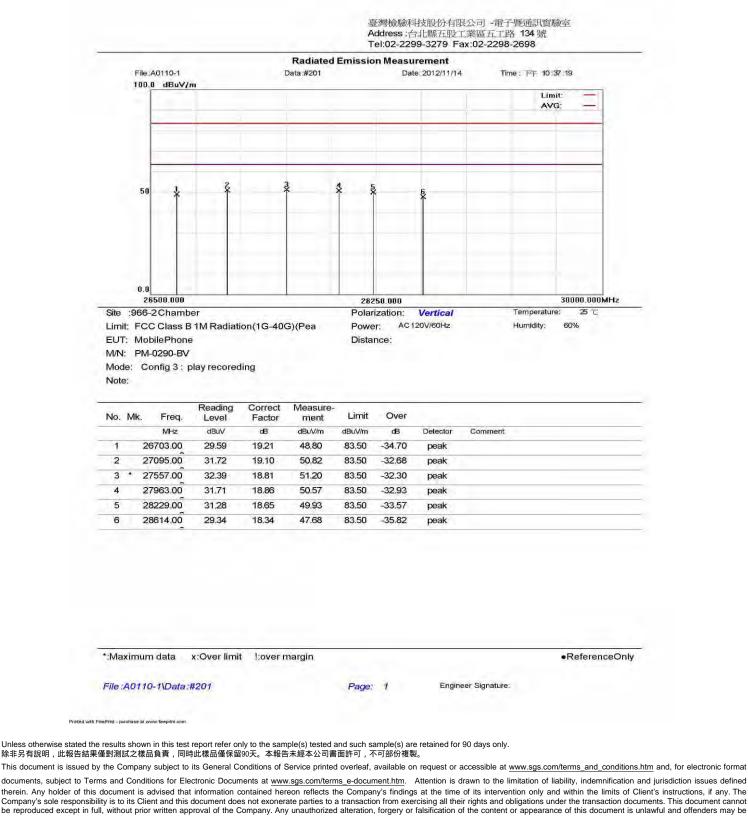


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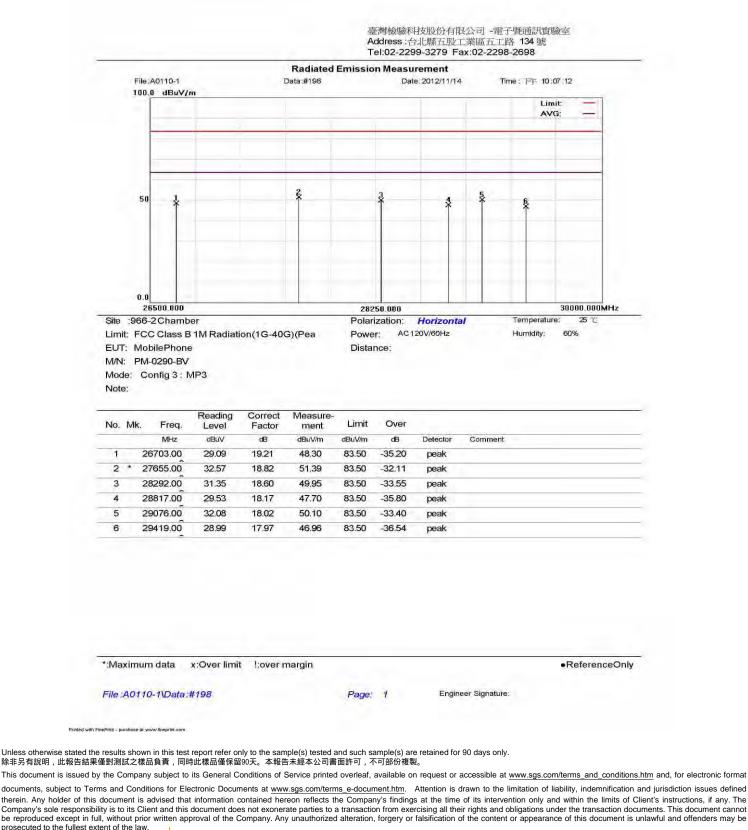
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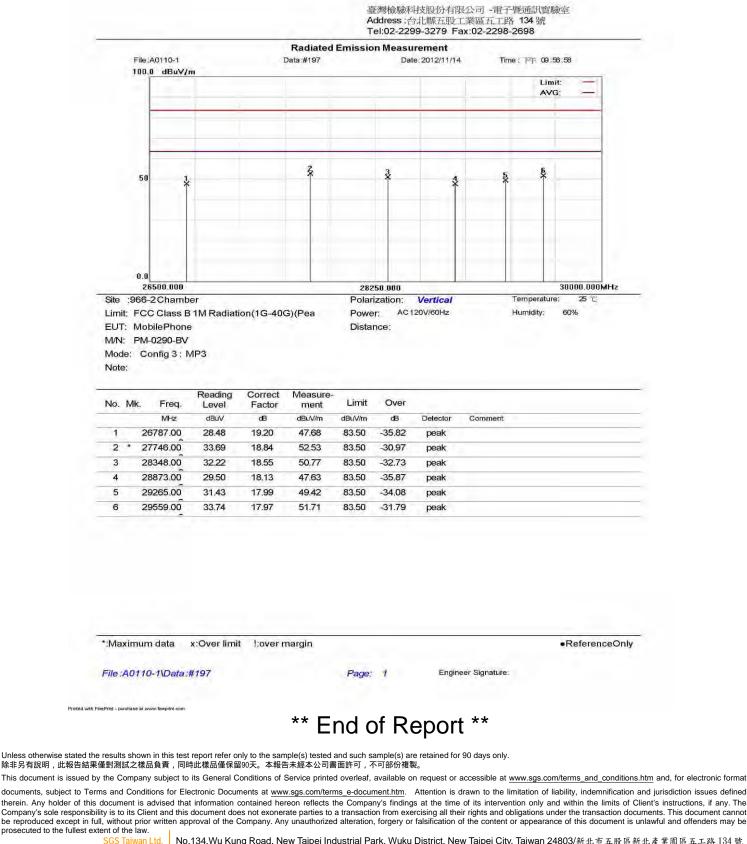


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