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RADIO TEST REPORT

Report No.: STS2201205W12

Issued for

Asteria Technology Pte. Ltd.

160 ROBINSON ROAD, #19-05 SBF CENTER,
SINGAPORE 068914

Product Name:	Gravio Hub 2
Brand Name:	Gravio
Model Name:	GHUB002
Series Model:	N/A
FCC ID:	2AT7Z-GHUB002
Test Standard:	FCC Part 22H and 24E, 27

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TEST RESULT CERTIFICATION


Applicant's Name: Asteria Technology Pte. Ltd.
 Address.....: 160 ROBINSON ROAD, #19-05 SBF CENTER, SINGAPORE 068914
 Manufacturer's Name: Asteria Technology Pte. Ltd.
 Address.....: 160 ROBINSON ROAD, #19-05 SBF CENTER, SINGAPORE 068914

Product Description


Product Name: Gravio Hub 2
 Brand Name: Gravio
 Model Name.....: GHUB002
 Series Model: N/A
 Test Standards: FCC Part 22H and 24E, 27
 Test Procedure: KDB 971168 D01 v03r01,ANSI C63.26(2015)

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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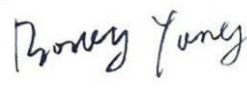
Date of Test.....:
 Date of receipt of test item: 20 Apr. 2022
 Date (s) of performance of tests : 20 Apr. 2022 ~ 10 Aug. 2022
 Date of Issue: 10 Aug. 2022
 Test Result: Pass

Testing Engineer : 

 (Chris Chen)

Technical Manager : 

 (Sean she)

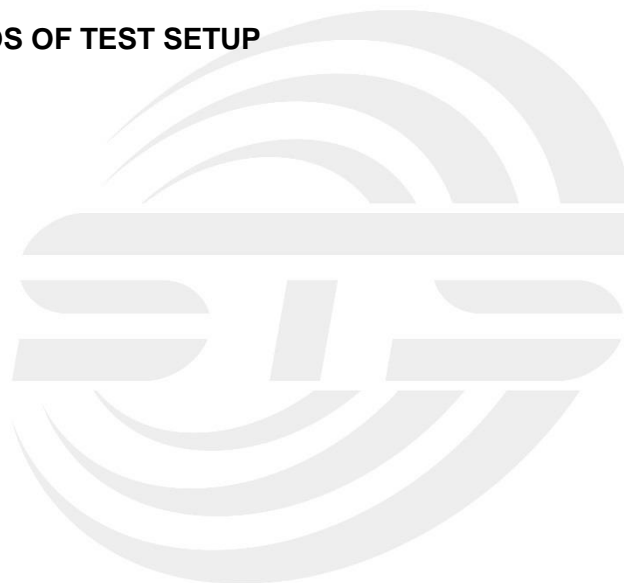
Authorized Signatory : 

 (Bovey Yang)





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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	10 Aug. 2022	STS2201205W12	ALL	Initial Issue





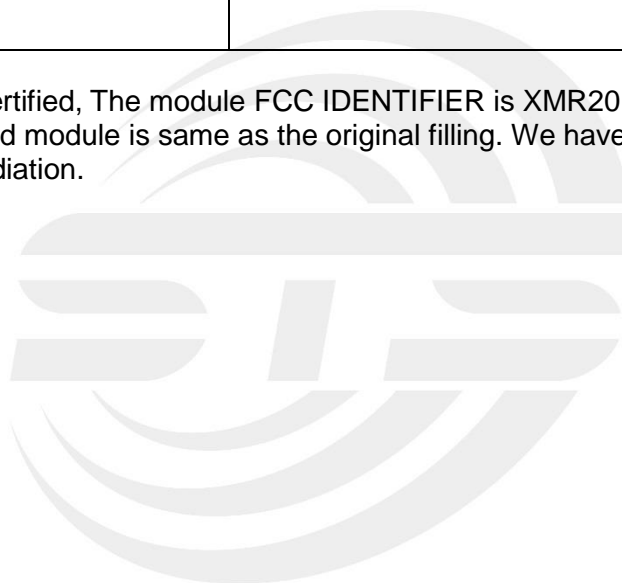
SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

The radiated emission testing was performed according to the procedures of KDB 971168 D01 v03r01 and ANSI C63.26(2015)

FCC Rules	Test Description	Test Limit	Test Result	Reference
2.1046 22.913 24.232 27.50	Effective Radiated Power/Equivalent Isotropic Radiated Power	< 7 Watts max. ERP(Part 22) < 2 Watts max. EIRP(Part 24) <1 Watts max. EIRP(Part 27)	PASS	
2.1053 22.917 24.238 27.53	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	

The module has been certified, The module FCC IDENTIFIER is XMR201903EG25G. In this report, this certified module is same as the original filling. We have tested the new Radiated Power and Spurious Radiation.





1 INTRODUCTION

1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement data shown herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

No.	Item	Uncertainty
1	RF output power, conducted	± 0.87 dB
2	Unwanted Emissions, conducted	± 2.895 dB
3	All emissions, radiated 9K-30MHz	± 3.80 dB
4	All emissions, radiated 30M-1GHz	± 4.09 dB
5	All emissions, radiated 1G-6GHz	± 4.92 dB
6	All emissions, radiated >6G	± 5.49 dB
7	Conducted Emission (9KHz-30MHz)	± 2.73 dB



2 PRODUCT INFORMATION

Product Name	Gravio Hub 2
Trade Name	Gravio
Model Name	GHUB002
Series Model	N/A
Model Difference	N/A
Tx Frequency:	GPRS/EDGE: 850: 824 MHz ~ 849MHz 1900: 1850 MHz ~ 1910MHz WCDMA: Band V: 824 MHz ~ 849 MHz Band II: 1850 MHz ~ 1910 MHz Band IV: 1710 MHz ~ 1755 MHz
Rx Frequency:	GPRS/EDGE: 850: 869 MHz ~ 894 MHz 1900: 1930 MHz ~ 1990MHz WCDMA: Band V: 869 MHz ~ 894 MHz Band II: 1930 MHz ~ 1990 MHz Band IV: 2110 MHz ~ 2155 MHz
Max RF Output Power:	GPRS850(1-Slot):32.53dBm, GPRS1900(1-Slot):29.66dBm GPRS850(2-Slot):32.08dBm, GPRS1900(2-Slot):29.16dBm GPRS850(3-Slot):31.61dBm, GPRS1900(3-Slot):28.50dBm GPRS850(4-Slot):31.17dBm, GPRS1900(4-Slot):28.33dBm EDGE 850(1-Slot):26.67dBm, EDGE 1900(1-Slot):26.20dBm EDGE 850(2-Slot):25.90dBm, EDGE 1900(2-Slot):25.46dBm EDGE 850(3-Slot):25.16dBm, EDGE 1900(3-Slot):24.67dBm EDGE 850(4-Slot):24.44dBm, EDGE 1900(4-Slot):23.93dBm WCDMA Band V:23.86dBm, WCDMA Band II:23.88dBm WCDMA Band IV:23.82dBm
Modulation Characteristics:	GMSK for GPRS; GMSK and 8PSK for EDGE WCDMA: QPSK; HSDPA:QPSK/16QAM; HSUPA:BPSK
SIM Card:	Built-in card.
Antenna:	FPC
Antenna gain:	2dBi
Rating	Input: DC 12V
GPRS/EDGE Class:	Multi-Class12
Extreme Vol. Limits:	DC 10.8V~ DC 13.2V(Normal: DC 12V)
Extreme Temp. Tolerance:	-30°C to +50°C
Hardware version number:	V4.4
Software version number:	V2.0

**** Note: The High Voltage 13.2V and Low Voltage 10.8V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage, the antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.**



3 TEST CONFIGURATION OF EQUIPMENT UNDER TEST

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 and ANSI C63.26 2015 Power Meas. License Digital Systems with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 10th harmonic for GPRS850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for WCDMA Band IV.
3. 30 MHz to 10th harmonic for GPRS1900 and WCDMA Band II.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

BAND	TEST MODES	
	RADIATED TCS	CONDUCTED TCS
GPRS 850	GPRS/EDGE CLASS 12 LINK	GPRS/EDGE CLASS 12 LINK
GPRS 1900	GPRS/EDGE CLASS 12 LINK	GPRS/EDGE CLASS 12 LINK
WCDMA BAND V	RMC 12.2KBPS LINK	RMC 12.2KBPS LINK
WCDMA BAND II	RMC 12.2KBPS LINK	RMC 12.2KBPS LINK
WCDMA BAND IV	RMC 12.2KBPS LINK	RMC 12.2KBPS LINK



4 MEASUREMENT INSTRUMENTS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2021.09.30	2022.09.29
Signal Analyzer	R&S	FSV 40-N	101823	2021.09.30	2022.09.29
Signal Generator	Agilent	83752A	3610A02740	2021.09.30	2022.09.29
Wireless Communications Test Set	R&S	CMW 500	131428	2022.03.01	2023.02.28
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2021.10.11	2023.10.10
Bilog Antenna	TESEQ	CBL6111D	45873	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1343	2020.10.12	2022.10.11
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier (0.1M-3GHz)	EM	EM330	060665	2021.10.08	2022.10.07
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2021.09.30	2022.09.29
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2021.09.28	2022.09.27
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Temperature & Humidity	HH660	Mieo	N/A	2021.10.09	2022.10.08
Test SW	BALUN	BL410-E/18.905			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Universal Radio communication tester	R&S	CMU200	111058	2021.09.29	2022.09.28
Wireless Communications Test Set	R&S	CMW 500	131428	2022.03.01	2023.02.28
Signal Analyzer	Agilent	N9020A	MY52440124	2022.03.01	2023.02.28
Temperature & Humidity test chamber	Safety test	AG80L	171200018	2022.03.01	2023.02.28
Programmable power supply	Agilent	E3642A	MY40002025	2021.10.08	2022.10.07
Temperature & Humidity	SW-108	SuWei	N/A	2022.03.02	2023.03.01
Test SW	FARAD	LZ-RF /LzRf-3A3			

Equipment with a calibration date of “NCR” shown in this list was not used to make direct calibrated measurements.

5 TEST ITEMS

5.1 CONDUCTED OUTPUT POWER&TRANSMITTER RADIATED POWER

TEST OVERVIEW

CONDUCTED OUTPUT POWER:

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

TRANSMITTER RADIATED POWER (EIRP/ERP)

Determining ERP and/or EIRP from conducted RF output power measurements according to ANSI C63.26 2015 Section 5.2.5.5.

In many cases, RF output power limits are specified in terms of the ERP or the EIRP. Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are defined as the product of the power supplied to the antenna and its gain (relative to a dipole antenna in the case of ERP, and relative to an isotropic antenna in the case of EIRP); however, when working in decibels (i.e., logarithmic scale), the ERP and EIRP represent the sum of the transmit antenna gain (in dBd or dBi, respectively) and the conducted RF output power (expressed in dB relative to watts or milliwatts). The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$(1) \text{ ERP or EIRP} = \text{PMeas} + \text{GT}$$
$$\text{ERP} = \text{EIRP} - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, e.g., dBm or dBW)

PMeas measured transmitter output power or PSD, in dBm or dBW

GT gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

For devices utilizing multiple antennas, see 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

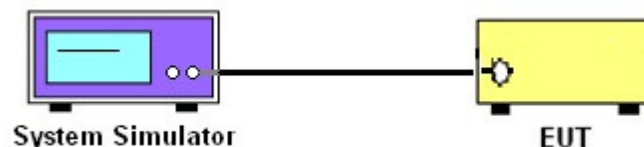
The following equations demonstrate the mathematical relationship between ERP and EIRP:

- ERP = EIRP – 2.15, where ERP and EIRP are expressed in consistent units.
- EIRP = ERP + 2.15, where ERP and EIRP are expressed in consistent units.

TEST PROCEDURES

1. The transmitter output port was connected to the system simulator.
2. Set eut at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

TEST SETUP



TEST RESULT

GSM 850							
Mode	Frequency (MHz)	Conduction AVG Power(dBm)	Ant Gain (dBi)	ERP (dBm)	ERP Limit (W)	ERP Limit (dBm)	Conclusion
GPRS (GMSK,1-Slot)	824.2	32.32	2.00	32.17	7.00	38.45	PASS
	836.6	32.53	2.00	32.38	7.00	38.45	PASS
	848.8	32.20	2.00	32.05	7.00	38.45	PASS
GPRS (GMSK,2-Slot)	824.2	31.90	2.00	31.75	7.00	38.45	PASS
	836.6	32.08	2.00	31.93	7.00	38.45	PASS
	848.8	31.71	2.00	31.56	7.00	38.45	PASS
GPRS (GMSK,3-Slot)	824.2	31.49	2.00	31.34	7.00	38.45	PASS
	836.6	31.61	2.00	31.46	7.00	38.45	PASS
	848.8	31.29	2.00	31.14	7.00	38.45	PASS
GPRS (GMSK,4-Slot)	824.2	31.01	2.00	30.86	7.00	38.45	PASS
	836.6	31.17	2.00	31.02	7.00	38.45	PASS
	848.8	30.87	2.00	30.72	7.00	38.45	PASS
EGPRS (8PSK,1-Slot)	824.2	26.51	2.00	26.36	7.00	38.45	PASS
	836.6	26.67	2.00	26.52	7.00	38.45	PASS
	848.8	26.67	2.00	26.52	7.00	38.45	PASS
EGPRS (8PSK,2-Slot)	824.2	25.74	2.00	25.59	7.00	38.45	PASS
	836.6	25.90	2.00	25.75	7.00	38.45	PASS
	848.8	25.90	2.00	25.75	7.00	38.45	PASS
EGPRS (8PSK,3-Slot)	824.2	25.01	2.00	24.86	7.00	38.45	PASS
	836.6	25.14	2.00	24.99	7.00	38.45	PASS
	848.8	25.16	2.00	25.01	7.00	38.45	PASS
EGPRS (8PSK,4-Slot)	824.2	24.26	2.00	24.11	7.00	38.45	PASS
	836.6	24.41	2.00	24.26	7.00	38.45	PASS
	848.8	24.44	2.00	24.29	7.00	38.45	PASS



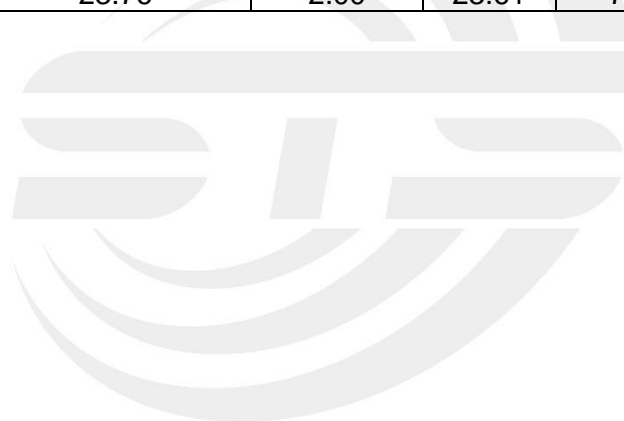
PCS 1900							
Mode	Frequency (MHz)	Conduction AVG Power(dBm)	Ant Gain (dBi)	EIRP (dBm)	EIRP Limit (W)	EIRP Limit (dBm)	Conclusion
GPRS (GMSK,1-Slot)	1850.2	29.66	2.00	31.66	2.00	33.01	PASS
	1880.0	29.41	2.00	31.41	2.00	33.01	PASS
	1909.8	29.18	2.00	31.18	2.00	33.01	PASS
GPRS (GMSK,2-Slot)	1850.2	29.16	2.00	31.16	2.00	33.01	PASS
	1880.0	28.99	2.00	30.99	2.00	33.01	PASS
	1909.8	28.70	2.00	30.70	2.00	33.01	PASS
GPRS (GMSK,3-Slot)	1850.2	28.74	2.00	30.74	2.00	33.01	PASS
	1880.0	28.55	2.00	30.55	2.00	33.01	PASS
	1909.8	28.22	2.00	30.22	2.00	33.01	PASS
GPRS (GMSK,4-Slot)	1850.2	28.33	2.00	30.33	2.00	33.01	PASS
	1880.0	28.13	2.00	30.13	2.00	33.01	PASS
	1909.8	27.78	2.00	29.78	2.00	33.01	PASS
EGPRS (8PSK,1-Slot)	1850.2	26.20	2.00	28.20	2.00	33.01	PASS
	1880.0	25.92	2.00	27.92	2.00	33.01	PASS
	1909.8	25.67	2.00	27.67	2.00	33.01	PASS
EGPRS (8PSK,2-Slot)	1850.2	25.46	2.00	27.46	2.00	33.01	PASS
	1880.0	25.20	2.00	27.20	2.00	33.01	PASS
	1909.8	24.88	2.00	26.88	2.00	33.01	PASS
EGPRS (8PSK,3-Slot)	1850.2	24.67	2.00	26.67	2.00	33.01	PASS
	1880.0	24.45	2.00	26.45	2.00	33.01	PASS
	1909.8	24.11	2.00	26.11	2.00	33.01	PASS
EGPRS (8PSK,4-Slot)	1850.2	23.93	2.00	25.93	2.00	33.01	PASS
	1880.0	23.75	2.00	25.75	2.00	33.01	PASS
	1909.8	23.31	2.00	25.31	2.00	33.01	PASS



Radiated Power (EIRP) for WCDMA Band 2							
Mode	Frequency (MHz)	Conduction AVG Power(dBm)	Ant Gain (dBi)	EIRP (dBm)	EIRP Limit(W)	EIRP Limit (dBm)	Conclusion
WCDMA	1852.40	23.88	2.00	25.88	2.00	33.01	PASS
	1880.00	23.79	2.00	25.79	2.00	33.01	PASS
	1907.60	23.76	2.00	25.76	2.00	33.01	PASS

Radiated Power (EIRP) for WCDMA Band 4							
Mode	Frequency (MHz)	Conduction AVG Power(dBm)	Ant Gain (dBi)	EIRP (dBm)	EIRP Limit(W)	EIRP Limit (dBm)	Conclusion
WCDMA	1712.40	23.82	2.00	25.82	1.00	30.00	PASS
	1732.60	23.74	2.00	25.74	1.00	30.00	PASS
	1752.60	23.64	2.00	25.64	1.00	30.00	PASS

Radiated Power (ERP) for WCDMA Band 5							
Mode	Frequency (MHz)	Conduction AVG Power(dBm)	Ant Gain (dBi)	ERP (dBm)	ERP Limit(W)	ERP Limit (dBm)	Conclusion
WCDMA	826.40	23.86	2.00	23.71	7.00	38.45	PASS
	836.40	23.81	2.00	23.66	7.00	38.45	PASS
	846.60	23.76	2.00	23.61	7.00	38.45	PASS





5.2 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT TEST OVERVIEW

Radiated spurious emissions measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power and at the appropriate frequencies.

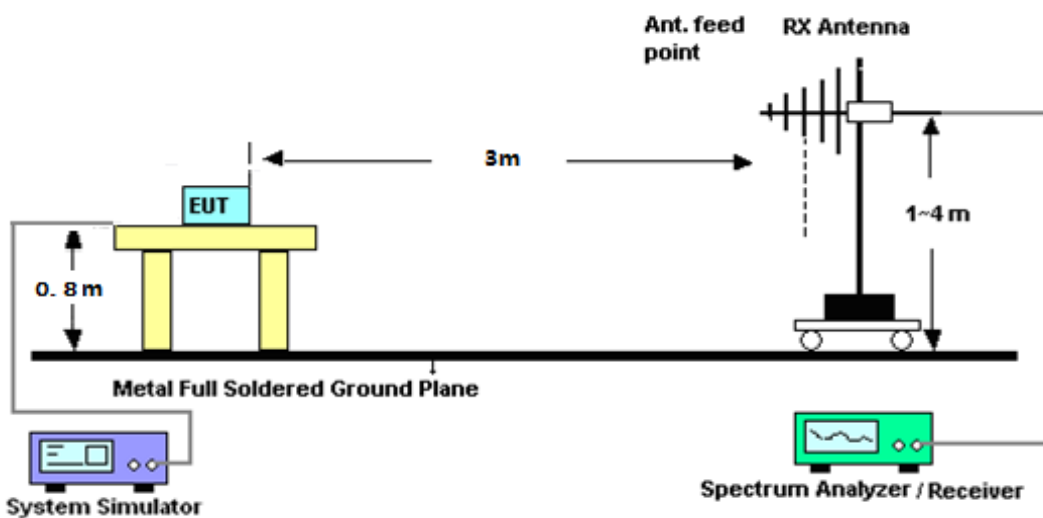
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

TEST PROCEDURE

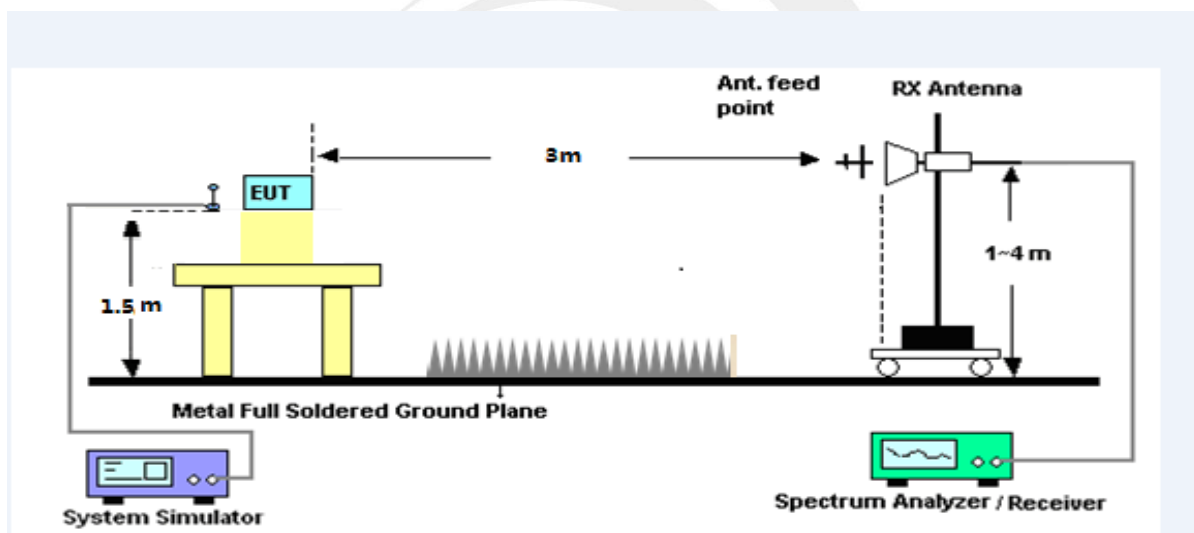
1. The testing FCC KDB 971168 D01 Section 5.8 and ANSI C63.26-2015-Section 5.5.
2. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $> 2 \times$ span/RBW
6. Detector = Peak
7. Trace mode = max hold
8. The trace was allowed to stabilize
9. Effective Isotropic Spurious Radiation was measured by substitution method according to TIA/EIA-603-D. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna.
 $P_{Mea} = S.G \text{ Level} + \text{Ant-Cable loss}$; $\text{Margin} = P_{Mea} - \text{Limit}$.

TEST SETUP

For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz





TEST RESULT

Note: (1) Spurious emissions which are attenuated by more than 20dB below the permissible value for frequency below 1000MHz.

(2) Above 3.5GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value

(3) Test is divided into three directions, X/Y/Z. X pattern for the worst.

EGPRS 850: (30-9000)MHz							
The Worst Test Results Channel 128/824.2 MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1648.36	-40.98	9.40	4.75	-36.33	-13.00	-23.33	H
2472.46	-39.45	10.60	8.39	-37.24	-13.00	-24.24	H
3296.46	-31.92	12.00	11.79	-31.71	-13.00	-18.71	H
1648.19	-44.11	9.40	4.75	-39.46	-13.00	-26.46	V
2472.37	-44.48	10.60	8.39	-42.27	-13.00	-29.27	V
3296.73	-42.84	12.00	11.79	-42.63	-13.00	-29.63	V
The Worst Test Results Channel 190/836.6 MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1673.15	-41.60	9.50	4.76	-36.86	-13.00	-23.86	H
2509.57	-39.73	10.70	8.40	-37.43	-13.00	-24.43	H
3346.13	-31.00	12.20	11.80	-30.60	-13.00	-17.60	H
1673.23	-44.47	9.40	4.75	-39.82	-13.00	-26.82	V
2509.87	-44.54	10.60	8.39	-42.33	-13.00	-29.33	V
3345.97	-42.78	12.20	11.82	-42.40	-13.00	-29.40	V
The Worst Test Results Channel 251/848.8 MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.60	-41.26	9.60	4.77	-36.43	-13.00	-23.43	H
2546.45	-39.32	10.80	8.50	-37.02	-13.00	-24.02	H
3395.25	-31.69	12.50	11.90	-31.09	-13.00	-18.09	H
1697.27	-43.41	9.60	4.77	-38.58	-13.00	-25.58	V
2546.24	-44.92	10.80	8.50	-42.62	-13.00	-29.62	V
3395.29	-43.41	12.50	11.90	-42.81	-13.00	-29.81	V



GPRS 850: (30-9000)MHz							
The Worst Test Results Channel 128/824.2 MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1648.47	-40.78	9.40	4.75	-36.13	-13.00	-23.13	H
2472.68	-40.48	10.60	8.39	-38.27	-13.00	-25.27	H
3296.74	-31.07	12.00	11.79	-30.86	-13.00	-17.86	H
1648.31	-43.79	9.40	4.75	-39.14	-13.00	-26.14	V
2472.66	-44.58	10.60	8.39	-42.37	-13.00	-29.37	V
3296.70	-43.29	12.00	11.79	-43.08	-13.00	-30.08	V
The Worst Test Results Channel 190/836.6 MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1673.10	-40.85	9.50	4.76	-36.11	-13.00	-23.11	H
2509.78	-40.48	10.70	8.40	-38.18	-13.00	-25.18	H
3345.97	-31.94	12.20	11.80	-31.54	-13.00	-18.54	H
1673.14	-44.63	9.40	4.75	-39.98	-13.00	-26.98	V
2509.70	-44.47	10.60	8.39	-42.26	-13.00	-29.26	V
3346.01	-43.55	12.20	11.82	-43.17	-13.00	-30.17	V
The Worst Test Results Channel 251/848.8 MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.22	-40.71	9.60	4.77	-35.88	-13.00	-22.88	H
2546.12	-39.98	10.80	8.50	-37.68	-13.00	-24.68	H
3395.02	-31.57	12.50	11.90	-30.97	-13.00	-17.97	H
1697.60	-43.15	9.60	4.77	-38.32	-13.00	-25.32	V
2546.27	-44.11	10.80	8.50	-41.81	-13.00	-28.81	V
3395.31	-43.55	12.50	11.90	-42.95	-13.00	-29.95	V



EGPRS 1900: (30-20000)MHz							
The Worst Test Results for Channel 512/1850.2MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3700.02	-34.48	12.60	12.93	-34.81	-13.00	-21.81	H
5550.57	-34.91	13.10	17.11	-38.92	-13.00	-25.92	H
7400.76	-33.43	11.50	22.20	-44.13	-13.00	-31.13	H
3700.16	-35.53	12.60	12.93	-35.86	-13.00	-22.86	V
5550.38	-34.11	13.10	17.11	-38.12	-13.00	-25.12	V
7400.56	-32.87	11.50	22.20	-43.57	-13.00	-30.57	V
The Worst Test Results for Channel 661/1880.0MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3760.18	-34.42	12.60	12.93	-34.75	-13.00	-21.75	H
5640.26	-34.24	13.10	17.11	-38.25	-13.00	-25.25	H
7520.22	-33.52	11.50	22.20	-44.22	-13.00	-31.22	H
3759.89	-35.25	12.60	12.93	-35.58	-13.00	-22.58	V
5640.23	-34.28	13.10	17.11	-38.29	-13.00	-25.29	V
7520.25	-33.06	11.50	22.20	-43.76	-13.00	-30.76	V
The Worst Test Results for Channel 810/1909.8MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3819.40	-33.67	12.60	12.93	-34.00	-13.00	-21.00	H
5729.09	-34.58	13.10	17.11	-38.59	-13.00	-25.59	H
7638.99	-32.89	11.50	22.20	-43.59	-13.00	-30.59	H
3819.73	-35.97	12.60	12.93	-36.30	-13.00	-23.30	V
5729.53	-34.81	13.10	17.11	-38.82	-13.00	-25.82	V
7638.95	-33.16	11.50	22.20	-43.86	-13.00	-30.86	V



GPRS1900: (30-20000)MHz							
The Worst Test Results for Channel 512/1850.2MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3700.03	-34.60	12.60	12.93	-34.93	-13.00	-21.93	H
5550.19	-34.00	13.10	17.11	-38.01	-13.00	-25.01	H
7400.85	-33.22	11.50	22.20	-43.92	-13.00	-30.92	H
3700.24	-35.06	12.60	12.93	-35.39	-13.00	-22.39	V
5550.40	-35.17	13.10	17.11	-39.18	-13.00	-26.18	V
7400.68	-31.91	11.50	22.20	-42.61	-13.00	-29.61	V
The Worst Test Results for Channel 661/1880.0MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3759.90	-34.66	12.60	12.93	-34.99	-13.00	-21.99	H
5640.26	-34.69	13.10	17.11	-38.70	-13.00	-25.70	H
7519.92	-32.24	11.50	22.20	-42.94	-13.00	-29.94	H
3760.20	-35.86	12.60	12.93	-36.19	-13.00	-23.19	V
5639.91	-34.38	13.10	17.11	-38.39	-13.00	-25.39	V
7520.13	-32.14	11.50	22.20	-42.84	-13.00	-29.84	V
The Worst Test Results for Channel 810/1909.8MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3819.49	-33.70	12.60	12.93	-34.03	-13.00	-21.03	H
5729.43	-34.29	13.10	17.11	-38.30	-13.00	-25.30	H
7638.89	-33.61	11.50	22.20	-44.31	-13.00	-31.31	H
3819.54	-34.84	12.60	12.93	-35.17	-13.00	-22.17	V
5729.06	-35.00	13.10	17.11	-39.01	-13.00	-26.01	V
7639.36	-32.31	11.50	22.20	-43.01	-13.00	-30.01	V



WCDMA Band 2: (30-20000)MHz							
The Worst Test Results for Channel 9262/1852.4MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3704.19	-34.10	12.60	12.93	-34.43	-13.00	-21.43	H
5557.42	-35.24	13.10	17.11	-39.25	-13.00	-26.25	H
7409.55	-32.39	11.50	22.20	-43.09	-13.00	-30.09	H
3704.22	-34.72	12.60	12.93	-35.05	-13.00	-22.05	V
5557.21	-34.20	13.10	17.11	-38.21	-13.00	-25.21	V
7409.55	-32.89	11.50	22.20	-43.59	-13.00	-30.59	V
The Worst Test Results for Channel 9400/1880MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3760.20	-34.23	12.60	12.93	-34.56	-13.00	-21.56	H
5639.96	-35.32	13.10	17.11	-39.33	-13.00	-26.33	H
7520.20	-33.60	11.50	22.20	-44.30	-13.00	-31.30	H
3759.89	-34.77	12.60	12.93	-35.10	-13.00	-22.10	V
5640.02	-35.05	13.10	17.11	-39.06	-13.00	-26.06	V
7519.90	-32.50	11.50	22.20	-43.20	-13.00	-30.20	V
The Worst Test Results for Channel 9538/1907.6MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3815.63	-33.48	12.60	12.93	-33.81	-13.00	-20.81	H
5722.22	-34.06	13.10	17.11	-38.07	-13.00	-25.07	H
7629.99	-32.21	11.50	22.20	-42.91	-13.00	-29.91	H
3815.65	-35.12	12.60	12.93	-35.45	-13.00	-22.45	V
5722.47	-34.12	13.10	17.11	-38.13	-13.00	-25.13	V
7630.01	-32.97	11.50	22.20	-43.67	-13.00	-30.67	V



WCDMA Band 4: (30-18000)MHz							
The Worst Test Results for Channel 1313/1712.6MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3424.86	-33.77	12.90	12.05	-32.92	-13.00	-19.92	H
5137.52	-34.67	12.80	16.27	-38.14	-13.00	-25.14	H
6850.32	-32.91	12.30	20.13	-40.74	-13.00	-27.74	H
3424.77	-35.55	12.90	12.05	-34.70	-13.00	-21.70	V
5137.58	-35.21	12.80	16.27	-38.68	-13.00	-25.68	V
6849.94	-31.95	12.30	20.13	-39.78	-13.00	-26.78	V
The Worst Test Results for Channel 1450/1740.0MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3479.99	-34.65	12.90	12.05	-33.80	-13.00	-20.80	H
5219.81	-34.09	12.80	16.27	-37.56	-13.00	-24.56	H
6959.68	-32.74	12.30	20.13	-40.57	-13.00	-27.57	H
3479.99	-35.55	12.90	12.05	-34.70	-13.00	-21.70	V
5219.99	-34.53	12.80	16.27	-38.00	-13.00	-25.00	V
6959.79	-33.14	12.30	20.13	-40.97	-13.00	-27.97	V
The Worst Test Results for Channel 1512/1752.4MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3504.76	-34.88	12.90	12.05	-34.03	-13.00	-21.03	H
5257.00	-34.66	12.80	16.27	-38.13	-13.00	-25.13	H
7009.47	-33.15	12.30	20.13	-40.98	-13.00	-27.98	H
3504.31	-35.72	12.90	12.05	-34.87	-13.00	-21.87	V
5257.00	-34.04	12.80	16.27	-37.51	-13.00	-24.51	V
7009.58	-33.11	12.30	20.13	-40.94	-13.00	-27.94	V



WCDMA Band 5: (30-9000)MHz							
The most testresults channel 4132/826.4MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1652.43	-40.89	9.40	4.75	-36.24	-13.00	-23.24	H
2479.68	-39.52	10.60	8.39	-37.31	-13.00	-24.31	H
3305.77	-31.35	12.00	11.79	-31.14	-13.00	-18.14	H
1652.05	-44.03	9.40	4.75	-39.38	-13.00	-26.38	V
2479.44	-45.10	10.60	8.39	-42.89	-13.00	-29.89	V
3305.80	-43.12	12.00	11.79	-42.91	-13.00	-29.91	V
The Worst Test Results Channel 4183/836.6MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.91	-40.78	9.40	4.75	-36.13	-13.00	-23.13	H
2509.46	-40.65	10.60	8.39	-38.44	-13.00	-25.44	H
3346.14	-31.97	12.00	11.79	-31.76	-13.00	-18.76	H
1673.02	-43.91	9.40	4.75	-39.26	-13.00	-26.26	V
2509.68	-44.55	10.60	8.39	-42.34	-13.00	-29.34	V
3346.11	-43.06	12.00	11.79	-42.85	-13.00	-29.85	V
The Worst Test Results Channel 4233/846.6MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1693.18	-40.48	9.40	4.75	-35.83	-13.00	-22.83	H
2539.31	-40.46	10.60	8.39	-38.25	-13.00	-25.25	H
3386.27	-31.00	12.00	11.79	-30.79	-13.00	-17.79	H
1693.31	-43.44	9.40	4.75	-38.79	-13.00	-25.79	V
2539.42	-45.12	10.60	8.39	-42.91	-13.00	-29.91	V
3386.32	-43.95	12.00	11.79	-43.74	-13.00	-30.74	V



APPENDIX-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

*****END OF THE REPORT*****

