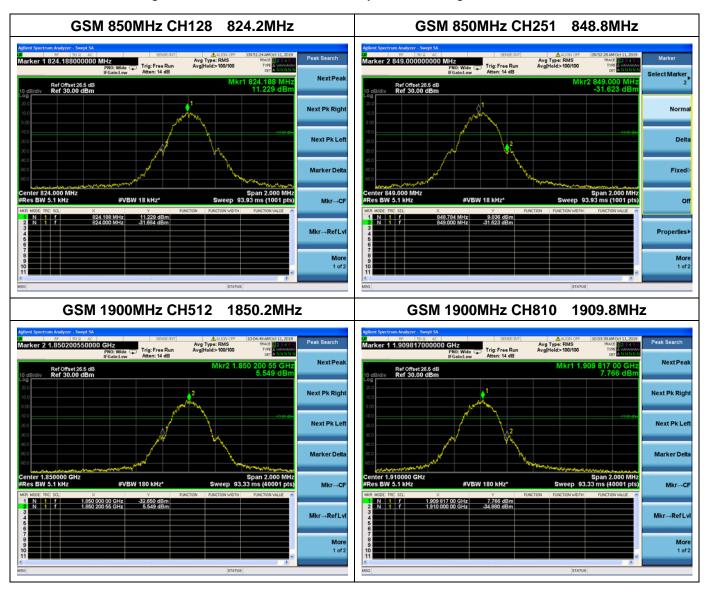


2.6.3. Test Result

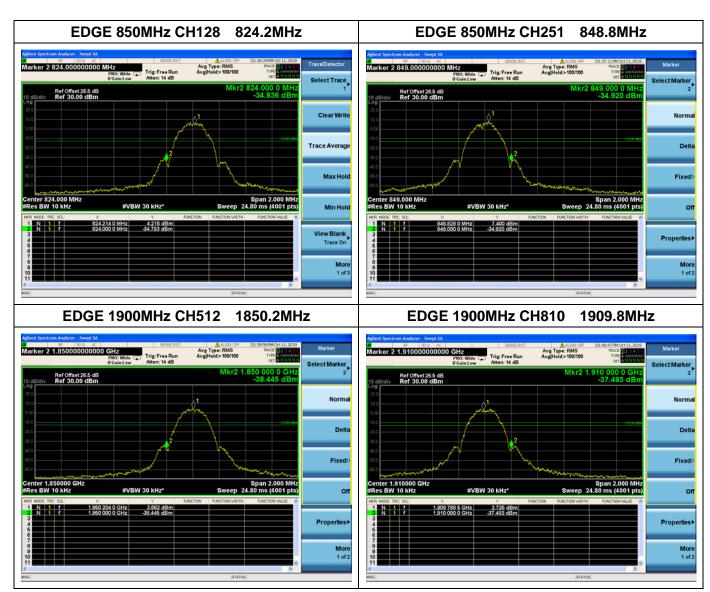
The lowest and highest channels are tested to verify the band edge emissions.



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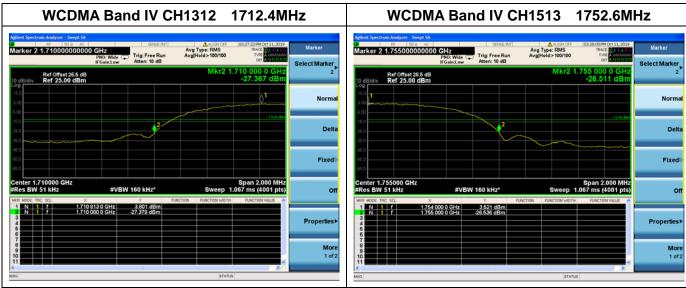






WCDMA Band V CH4132 826.4MHz WCDMA Band V CH4233 846.6MHz Trig: Free Run fe Trig: Free Run Next Pea Ref Offset 26.5 dB Ref 25.00 dBm Ref Offset 26.5 dB Ref 25.00 dBm Next Pk Righ Marker Delt Off Mkr→CF Mkr→RefLv WCDMA Band II CH9262 WCDMA Band II CH9538 1852.4MHz 1907.6MHz Trig: Free Run te Trig: Free Run Ref Offset 26.5 dB Ref 25.00 dBm Ref Offset 26.5 dB Ref 25.00 dBm #VBW 160 kHz* 3,161 dBr -28,618 dBr Properties









2.7. Transmitter Radiated Power (EIRP/ERP)

2.7.1. Requirement

According to FCC section 22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7Watts.

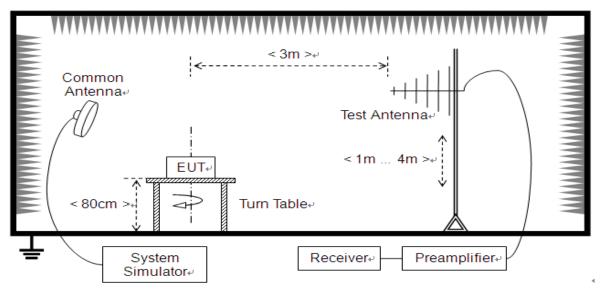
According to FCC section 24.232, the broadband PCS mobile station is limited to 2 Watts e.i.r.p. peak power.

According to FCC section 27.50, mobile, and portable (hand-held) stations is limited to 1 Watts e.i.r.p. peak power.

2.7.2. Test Description

Test Setup:

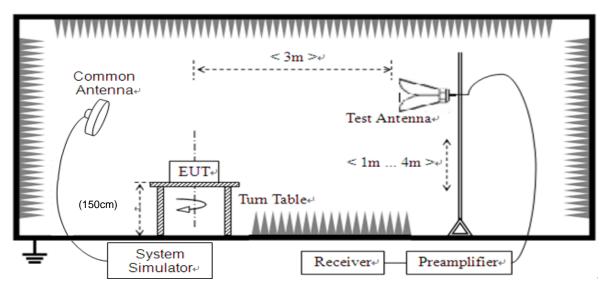
1) Below1GHz







2) Above 1GHz



The EUT is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading. A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.





2.7.3. Test Result

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

A_{SUBST} = P_{SUBST} TX - P_{SUBST} RX - L_{SUBST} CABLES + G_{SUBST} TX ANT

 $A_{TOT} = L_{CABLES} + A_{SUBST}$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST TX} is signal generator level,

P_{SUBST RX} is receiver level,

 $L_{\text{SUBST_CABLES}}$ is cable losses including TX cable,

G_{SUBST TX ANT} is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT} .



GSM Test verdict:

Pond	Channel	Frequency	PCL	Measu	red ERP	Lim	it	Verdict
Band	Chamilei	(MHz)	PCL	dBm	W	dBm	W	verdict
GSM	128	824.20	5	29.35	0.861			PASS
850MHz	190	836.60	5	29.36	0.863	38.5	7	PASS
OSUMINZ	251	848.80	5	29.34	0.859			PASS
GPRS	128	824.20	5	29.43	0.877			PASS
850MHz	190	836.60	5	29.33	0.857	38.5	7	PASS
OSUMITIZ	251	848.80	5	29.44	0.879			PASS
EDGE	128	824.20	5	23.57	0.228			PASS
850MHz	190	836.60	5	23.59	0.229	38.5	7	PASS
OSUMITZ	251	848.80	5	23.54	0.226			PASS

Note 1:For the GPRS and EDGE model, all the slots were tested and just the worst data were recorded in this report.

Note 2: Both horizontal and vertical polarizations of the test antenna are evaluatedrespectively, only the worst data (horizontal) were recorded in this report.

Band	Channel	Frequency	PCL	Measu	red EIRP	Lim	it	Verdict
Dallu	Chamilei	(MHz)	PCL	dBm	W	dBm	W	verdict
GSM	512	1850.2	0	29.45	0.881			PASS
1900MHz	661	1880.0	0	29.44	0.879	33	2	PASS
T900MHZ	810	1909.8	0	29.42	0.875			PASS
GPRS	512	1850.2	0	29.40	0.871			PASS
1900MHz	661	1880.0	0	29.60	0.912	33	2	PASS
T900MHZ	810	1909.8	0	29.51	0.893			PASS
EDGE	512	1850.2	0	26.58	0.455			PASS
1900MHz	661	1880.0	0	26.66	0.463	33	2	PASS
I SOUMINZ	810	1909.8	0	26.60	0.457			PASS

Note 1:For the GPRS and EDGE model, all the slots were tested and just the worst data were recorded in this report.

Note 2: Both horizontal and vertical polarizations of the test antenna are evaluatedrespectively, only the worst data (horizontal) were recorded in this report.



WCDMA Test verdict:

Band	Channel	Frequency	Measure	d ERP	Lim	it	Verdict
Dallu	Chamilei	(MHz)	dBm	W	dBm	W	verdict
MCDMA	4132	826.4	19.99	0.100			PASS
WCDMA Band V	4182	836.4	20.00	0.100	38.5	7	PASS
Dallu V	4233	846.6	19.98	0.100			PASS
HSDPA	4132	826.4	19.53	0.090			PASS
Band V	4182	836.4	19.14	0.082	38.5	7	PASS
Dallu V	4233	846.6	19.00	0.079			PASS
HCLIDA	4132	826.4	19.06	0.081			PASS
HSUPA Band V	4182	836.4	19.08	0.081	38.5	7	PASS
Dailu V	4233	846.6	19.03	0.080			PASS

Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.

Dond	Channal	Frequency	Measure	d EIRP	Lim	it	\
Band	Channel	(MHz)	dBm	W	dBm	W	Verdict
WCDMA	9262	1852.4	18.98	0.079			PASS
Band II	9400	1880.0	18.99	0.079	33	2	PASS
Dallu II	9538	1907.6	18.97	0.079			PASS
ПСБВА	9262	1852.4	18.52	0.071			PASS
HSDPA Band II	9400	1880.0	18.13	0.065	33	2	PASS
Dallu II	9538	1907.6	17.99	0.063			PASS
HCLIDA	9262	1852.4	18.05	0.064			PASS
HSUPA Band II	9400	1880.0	18.07	0.064	33	2	PASS
Dailu II	9538	1907.6	18.02	0.063			PASS

Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.



Dand	Channal	Frequency	Measure	d EIRP	Lim	it	\/ordigt
Band	Channel	(MHz)	dBm	W	dBm	W	Verdict
WCDMA	1312	1712.4	17.98	0.063			PASS
Band IV	1413	1732.6	18.09	0.064	30	1	PASS
Danu IV	1513	1752.6	18.20	0.066			PASS
HSDPA	1312	1712.4	17.36	0.054			PASS
Band IV	1413	1732.6	17.33	0.054	30	1	PASS
Dallu IV	1513	1752.6	17.23	0.053			PASS
HSUPA	1312	1712.4	17.33	0.054			PASS
Band IV	1413	1732.6	17.27	0.053	30	1	PASS
Danu IV	1513	1752.6	17.11	0.051			PASS

Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.



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2.8. Radiated Out of Band Emissions

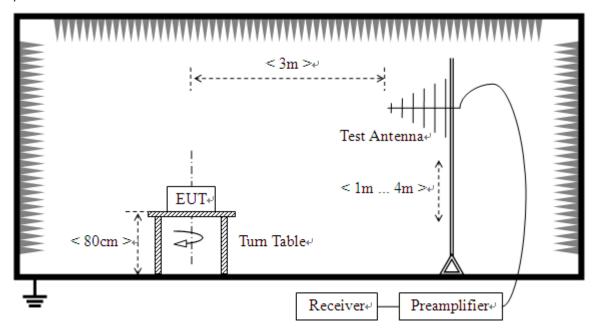
2.8.1. Requirement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.8.2. Test Description

Test Setup:

1) Below1GHz





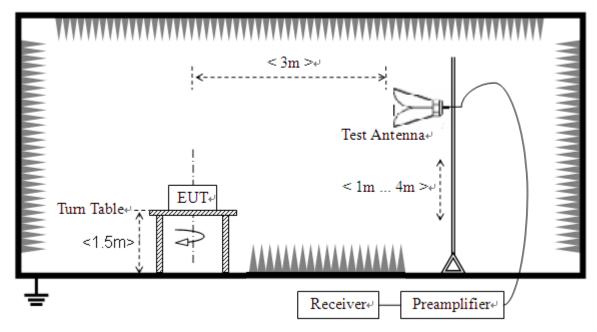
SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,



2) Above 1GHz



The EUTis located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) and a Horn one (used for above 3GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.



2.8.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions. The power of the EUT transmitting frequency should be ignored.

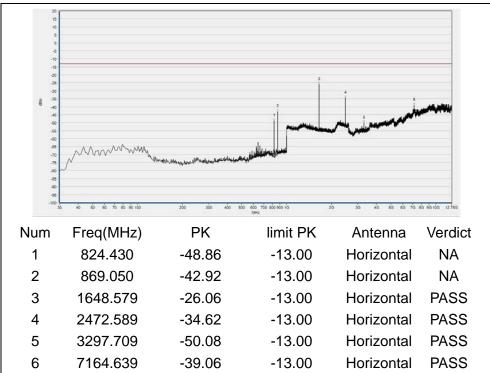
			Measured Ma	ax. Spurious		
Band	Channel	Frequency	Emission	n (dBm)	Limit (dBm)	Verdict
Danu	Channe	(MHz)	Test Antenna	Test Antenna	Lilliit (dbill)	verdict
			Horizontal	Vertical		
GSM	128	824.2	< -25	< -25		PASS
850MHz	190	836.6	< -25	< -25	-13	PASS
OJUMI IZ	251	848.8	< -25	< -25		PASS
GSM	512	1850.2	< -25	< -25		PASS
1900MHz	661	1880.0	< -25	< -25	-13	PASS
1900101112	810	1909.8	< -25	< -25		PASS
EDGE	128	824.2	< -25	< -25		PASS
850MHz	190	836.6	< -25	< -25	-13	PASS
OSUMITZ	251	848.8	< -25	< -25		PASS
EDGE	512	1850.2	< -25	< -25		PASS
1900MHz	661	1880.0	< -25	< -25	-13	PASS
1900101112	810	1909.8	< -25	< -25		PASS
WCDMA	4132	826.4	< -25	< -25		PASS
Band V	4183	836.4	< -25	< -25	-13	PASS
Danu V	4233	846.6	< -25	< -25		PASS
///CDMA	9262	1852.4	< -25	< -25		PASS
WCDMA	9400	1880.0	< -25	< -25	-13	PASS
Band II	9538	1907.6	< -25	< -25		PASS

Note 1: All test mode and condition mentioned were considered and evaluated respectively by performing full test, only the worst data were recorded and reported.

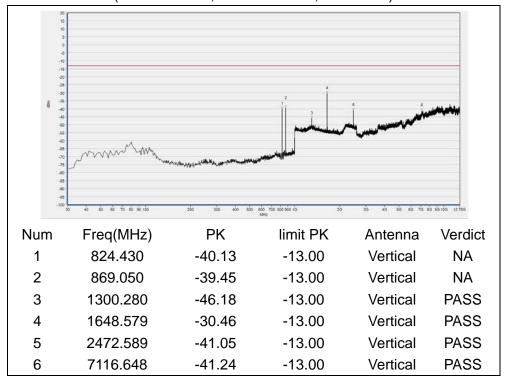
Note 2:All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.







(GSM 850MHz, Channel = 128, Horizontal)

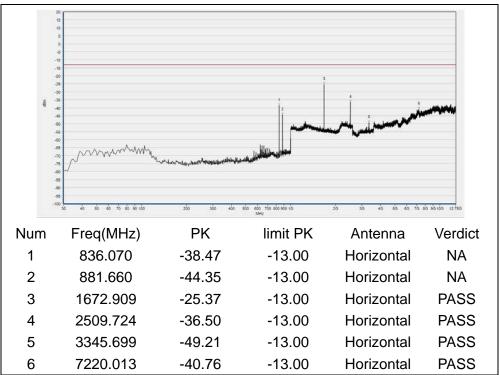


(GSM 850MHz, Channel = 128, Vertical)

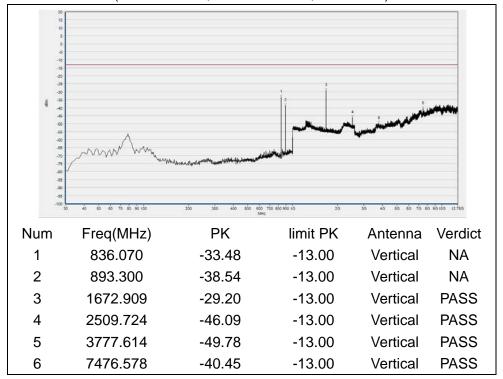








(GSM850MHz, Channel = 190, Horizontal)

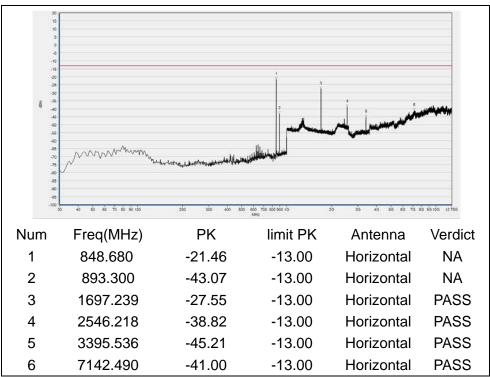


(GSM 850MHz, Channel = 190, Vertical)

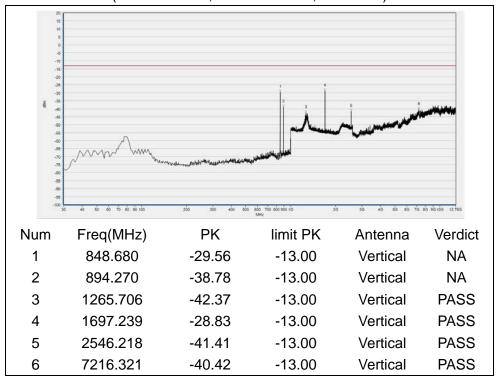








(GSM 850MHz, Channel = 251, Horizontal)



(GSM 850MHz, Channel = 251, Vertical)

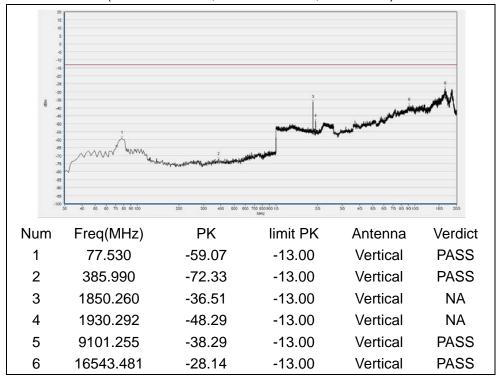








(GSM 1900MHz, Channel = 512, Horizontal)



(GSM 1900MHz, Channel = 512, Vertical)

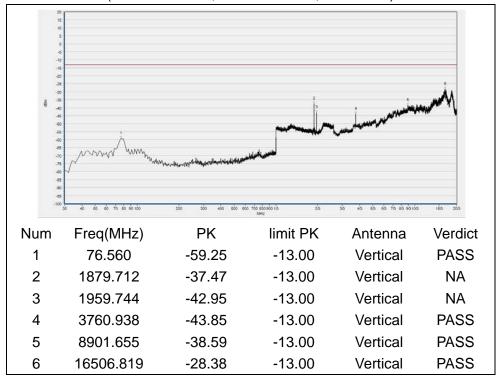








(GSM 1900MHz, Channel = 661, Horizontal)

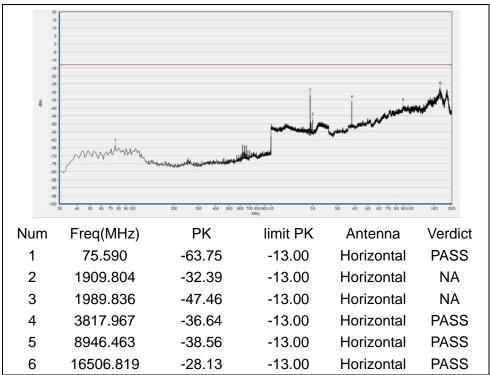


(GSM 1900MHz, Channel = 661, Vertical)

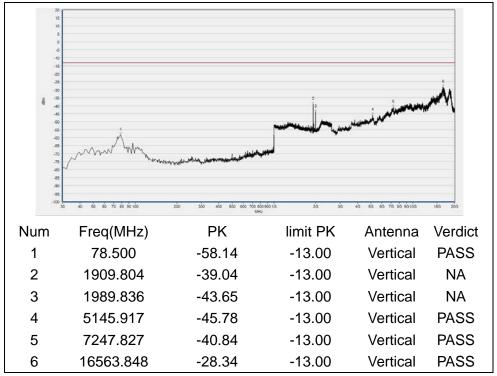








(GSM 1900MHz, Channel = 810, Horizontal)

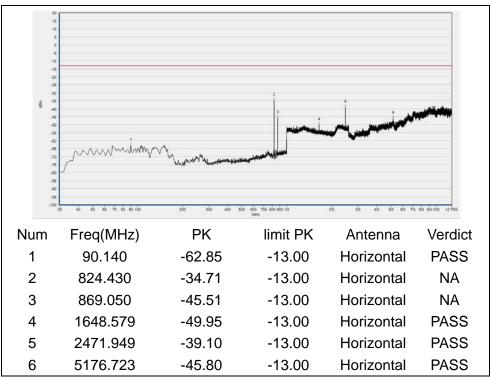


(GSM 1900MHz, Channel = 810, Vertical)









(EDGE 850MHz, Channel = 128, Horizontal)

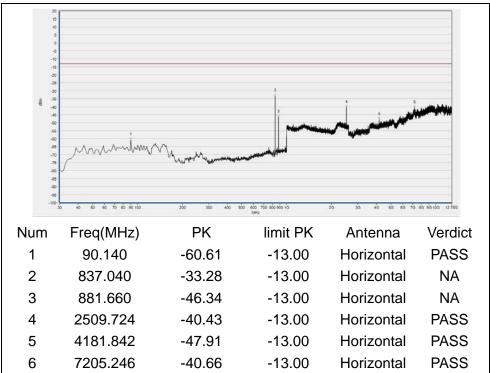


(EDGE 850MHz, Channel = 128, Vertical)

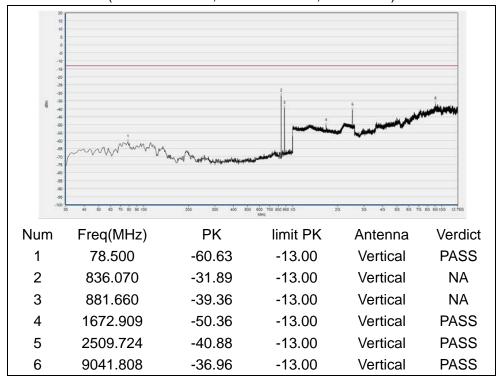








(EDGE 850MHz, Channel = 190, Horizontal)

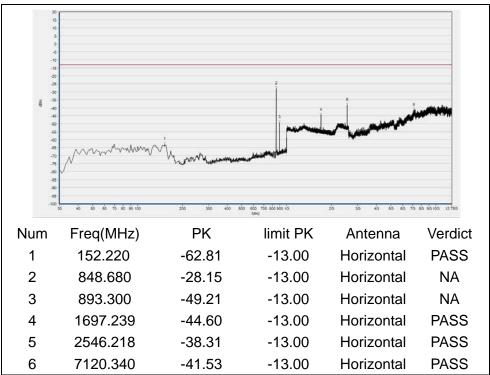


(EDGE 850MHz, Channel = 190, Vertical)

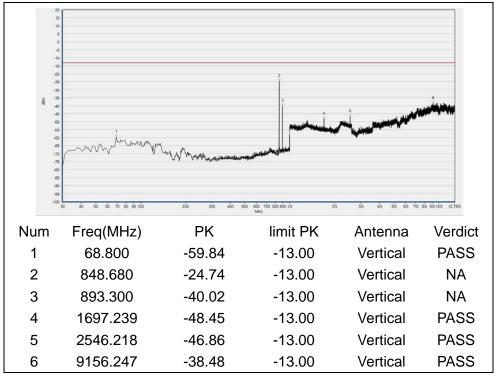








(EDGE 850MHz, Channel = 251, Horizontal)



(EDGE 850MHz, Channel = 251, Vertical)

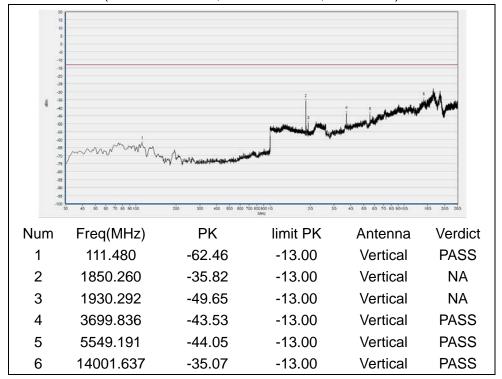








(EDGE 1900MHz, Channel = 512, Horizontal)



(EDGE 1900MHz, Channel = 512, Vertical)

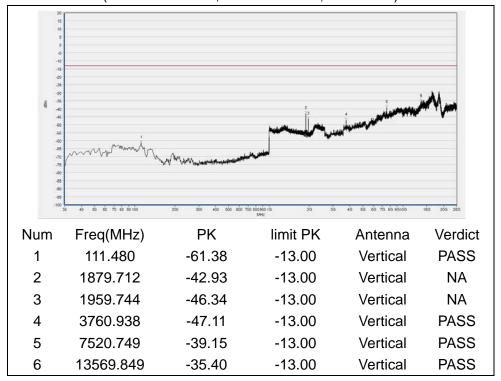








(EDGE 1900MHz, Channel = 661, Horizontal)



(EDGE 1900MHz, Channel = 661, Vertical)

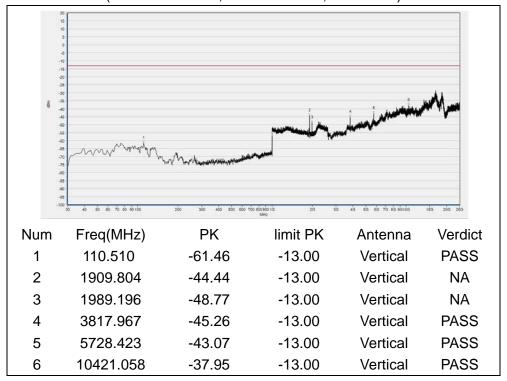






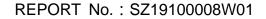


(EDGE 1900MHz, Channel = 810, Horizontal)

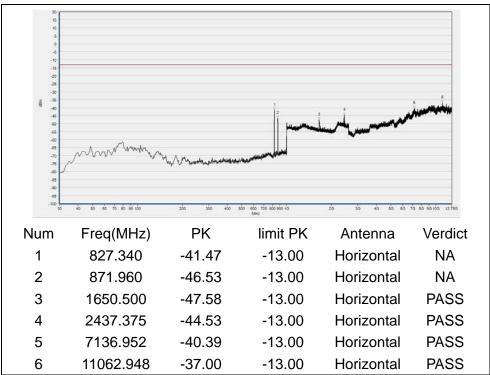


(EDGE 1900MHz, Channel = 810, Vertical)

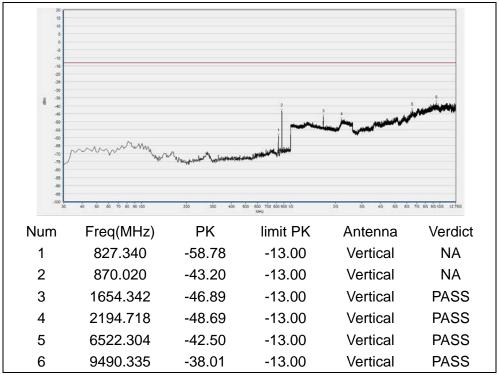








(WCDMA Band V, Channel = 4132, Horizontal)



(WCDMA Band V, Channel = 4132, Vertical)

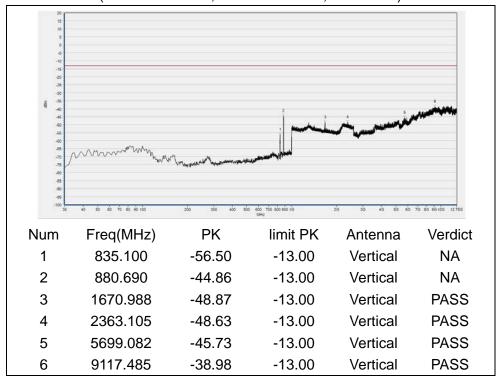






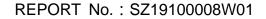


(WCDMA Band V, Channel = 4183, Horizontal)

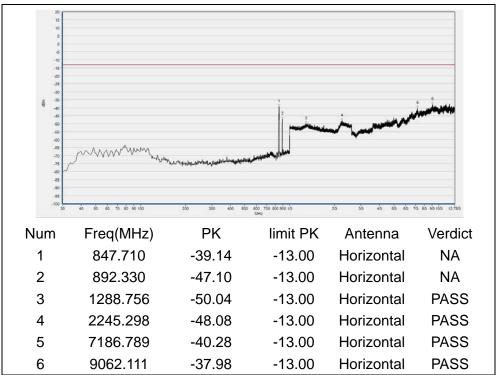


(WCDMA Band V, Channel = 4183, Vertical)

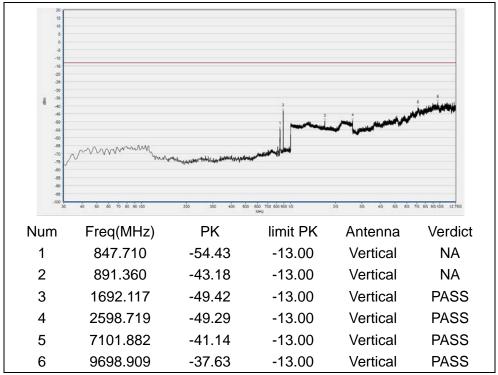






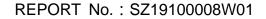


(WCDMA Band V, Channel = 4233, Horizontal)

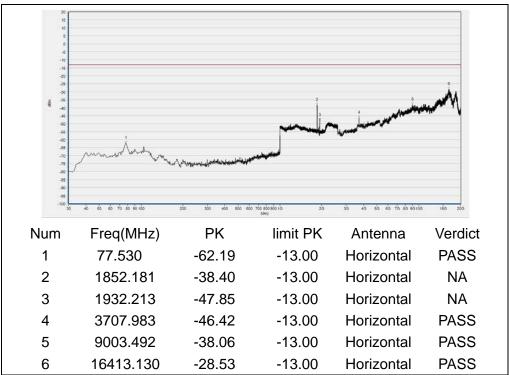


(WCDMA Band V, Channel = 4233, Vertical)

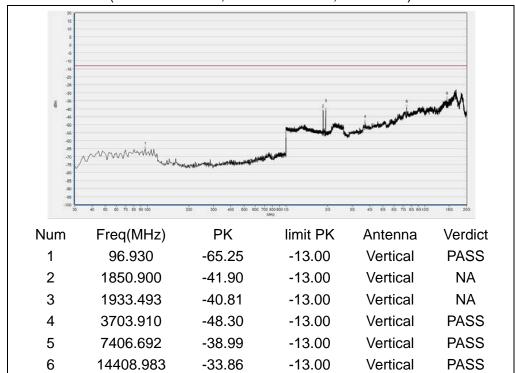






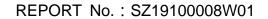


(WCDMA Band II, Channel = 9262, Horizontal)

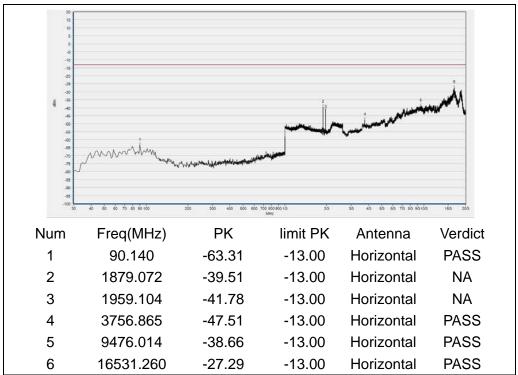


(WCDMA Band II, Channel = 9262, Vertical)

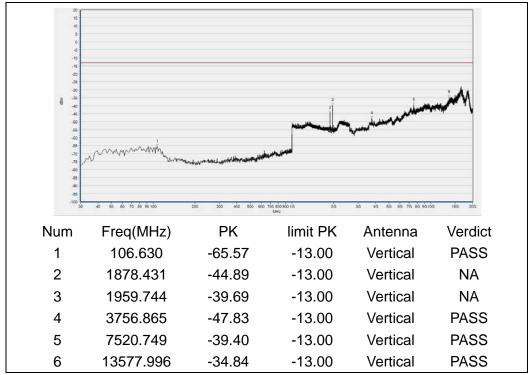








(WCDMA Band II, Channel = 9400, Horizontal)



(WCDMA Band II, Channel = 9400, Vertical)









(WCDMA Band II, Channel = 9538, Horizontal)



(WCDMA Band II, Channel = 9538, Vertical)

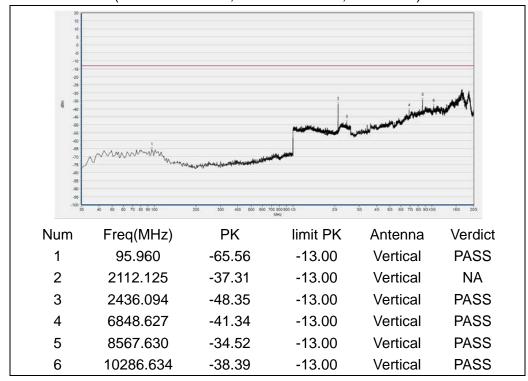








(WCDMA Band IV, Channel = 1312, Horizontal)

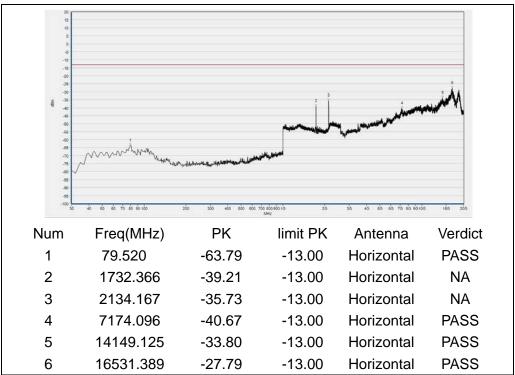


(WCDMA Band IV, Channel = 1312, Vertical)

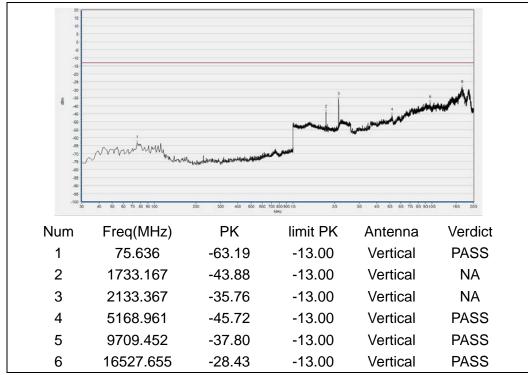








(WCDMA Band IV, Channel = 1413, Horizontal)



(WCDMA Band IV, Channel = 1413, Vertical)

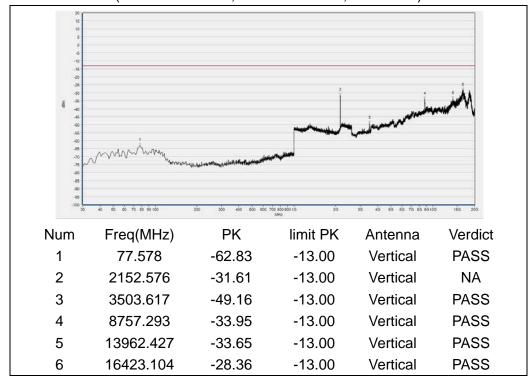








(WCDMA Band IV, Channel = 1513, Horizontal)



(WCDMA Band IV, Channel = 1513, Vertical)





Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Output Power	±2.22dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Radiated Emission	±2.95dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2





Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
	Morlab Laboratory
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang
	Road, Block 67, BaoAn District, ShenZhen, GuangDong
	Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
	FL.3, Building A, FeiYang Science Park, No.8 LongChang
Address:	Road, Block 67, BaoAn District, ShenZhen, GuangDong
	Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.





4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Туре	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	2019.04.17	2020.04.16
Attenuator 1	(N/A.)	10dB	Resnet	2019.04.17	2020.04.16
Attenuator 2	(N/A.)	3dB	Resnet	2019.04.17	2020.04.16
EXA Signal Analzyer	MY53470836	N9010A	Agilent	2018.11.06	2019.11.05
Wireless synthesizer	MY48364176	8960 -E5515C	Agilent	2019.04.17	2020.04.16
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Temperature Chamber	(N/A)	HUT705P	CHONGQING HANBA EXPERIMENTAL EQUIPMENT CO.,LTD	2019.04.17	2020.04.16
Computer	T430i	Think Pad	Lenovo	N/A	N/A



4.2 Radiated Test Equipments

Equipment		_		0.15.	0.15
Name	Serial No.	Туре	Manufacturer	Cal. Date	Cal.Due
System Simulator	152038	CMW500	R&S	2019.08.04	2020.08.03
Receiver	MY54130016	N9038A	Agilent	2019.05.18	2020.05.17
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.03.03	2020.03.02
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2019.08.06	2020.08.05
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2019.08.02	2020.08.01
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable(N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.07
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.07
Notch Filter	N/A	WRCG-GSM 850	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCG-GSM 1900	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCGV-W Band V	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCGV-W Band II	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCGV-W Band IV	Wainwright	2018.12.01	2019.11.30
Anechoic Chamber	N/A	9m*6m*6m	CRT	2017.11.19	2020.11.18

END OF REPORT



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