



RADIO TEST REPORT

Report No.: STS2305319W05

Issued for

Trackimo INC.

680 Central Ave, Cedarhurst, New York 11516, USA

Product Name:	GPS Tracker
Brand:	Tracki, Trackimo
Model Number:	TRKM010B
Series Model(s):	TRKM010W, TRKM010J, TRKM010V, TRKM010T, TRKM010E
FCC ID:	2AAI6-TRKM010B
Test Standard:	FCC Part 22H and 24E

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**TEST RESULT CERTIFICATION**

Applicant's Name: Trackimo INC.
Address.....: 680 Central Ave, Cedarhurst, New York 11516, USA
Manufacturer's Name: Trackimo INC.
Address.....: 680 Central Ave, Cedarhurst, New York 11516, USA

Product Description

Product Name: GPS Tracker
Brand: Tracki, Trackimo
Model Number.....: TRKM010B
Series Model(s).....: TRKM010W, TRKM010J, TRKM010V, TRKM010T, TRKM010E
Test Standards: FCC Part 22H and 24E
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: 24 Sept. 2021
Date (s) of performance of tests : 24 Sept. 2021 ~ 05 June 2023
Date of Issue: 05 June 2023
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	22 Oct. 2021	STS2109174W05	ALL	Initial Issue
00	05 June 2023	STS2305319W05	ALL	Update applicant, manufacturer, brand name, series mode, hardware version number and radiated stray data, update antenna gain and add series models





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	Conducted Output Power	Reporting Only	PASS	
22.913d 24.232d	Peak-to-Average Ratio	< 13 dB	PASS	
2.1046 22.913 24.232	Effective Radiated Power/Equivalent Isotropic Radiated Power	< 7 Watts max. ERP(Part 22) < 2 Watts max. EIRP(Part 24)	PASS	
2.1049 22.917 24.238	Occupied Bandwidth	Reporting Only	PASS	
2.1055 22.355 24.235	Frequency Stability	< 2.5 ppm (Part 22) Emission must remain in band (Part 24)	PASS	
2.1051 22.917 24.238	Spurious Emission at Antenna Terminals	< 43+10log10(P[Watts])	PASS	
2.1053 22.917 24.238	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	
2.1051 22.917 24.238	Band Edge	< 43+10log10(P[Watts])	PASS	



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	$\pm 1.197\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.896\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 3.84\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 3.94\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 4.59\text{dB}$
6	All emissions, radiated >6G	$\pm 5.22\text{dB}$
7	Conducted Emission (9KHz-150KHz)	$\pm 2.14\text{dB}$
8	Conducted Emission (150KHz-30MHz)	$\pm 2.54\text{dB}$



2 PRODUCT INFORMATION

Product Name	GPS Tracker
Brand	Tracki, Trackimo
Model Number	TRKM010B
Series Model(s)	TRKM010W, TRKM010J, TRKM010V, TRKM010T, TRKM010E
Model Difference	The difference only in the model name and Brand name.
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
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
Max RF Output Power:	GPRS850(1-Slot):32.24dBm, GPRS1900(1-Slot):29.38dBm GPRS850(2-Slot):31.75dBm, GPRS1900(2-Slot):28.93dBm GPRS850(3-Slot):31.31dBm, GPRS1900(3-Slot):28.51dBm GPRS850(4-Slot):30.90dBm, GPRS1900(4-Slot):28.01dBm EDGE 850(1-Slot):29.27dBm, EDGE 1900(1-Slot):27.53dBm EDGE 850(2-Slot):28.55dBm, EDGE 1900(2-Slot):26.74dBm EDGE 850(3-Slot):27.84dBm, EDGE 1900(3-Slot):26.02dBm EDGE 850(4-Slot):27.10dBm, EDGE 1900(4-Slot):25.30dBm WCDMA Band V:23.05dBm, WCDMA Band II:22.68dBm
Type of Emission:	GPRS(850): 245KGXW; GPRS(1900): 250KGXW EDGE(850): 245KG7W; EDGE(1900): 249KG7W WCDMA850: 4M16F9W WCDMA1900: 4M16F9W
Modulation Characteristics:	GMSK for GPRS; GMSK and 8PSK for EDGE WCDMA: QPSK; HSDPA:QPSK/16QAM; HSUPA:BPSK
SIM Card:	Only support single SIM Card.
Antenna:	PIFA
Antenna gain:	GPRS 850: -11.97dBi ,GPRS 1900: -4.45dBi WCDMA 850: -11.97dBi, WCDMA1900: -4.45dBi,
Battery:	Rated Voltage: 3.7V Charge Limit Voltage: 4.2V Capacity: 600mAh
Rating:	Input: DC 5V 500mA
GPRS/EDGE Class:	Multi-Class12



Extreme Vol. Limits:	DC 3.3V~ DC 4.2V(Normal: DC 3.7V)
Extreme Temp. Tolerance:	-10℃ to +55℃
Hardware version number:	UB12 PCB V0.3
Software version number:	0.3
** Note: The High Voltage 4.2V and Low Voltage 3.3V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	





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 GSM850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for GSM1900 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
GSM 850	GSM LINK GPRS/EDGE CLASS 12 LINK	GSM LINK GPRS/EDGE CLASS 12 LINK
GSM 1900	GSM LINK GPRS/EDGE CLASS 12 LINK	GSM 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

RF Function	Band	Mode	Modulation	Power Class	Ant Gain(dBi)	Ant Type	SIM Card
GSM	850	GPRS (Class12)	GMSK	4	GSM850: -11.97 GSM1900: -4.45	PIFA	1 SIM 1 is used to tested.
		EDGE(Class12)	GMSK, 8PSK	E2			
	1900	GPRS (Class12)	GMSK	1			
		EDGE(Class12)	GMSK, 8PSK	E2			
RF Function	Band	Mode	Modulation	Power Class	Ant Gain(dBi)	Ant Type	SIM Card
WCDMA	2/5	WCDMA	QPSK	3	B2: -4.45 B5: -11.97	PIFA	1 SIM 1 is used to tested.
		HSDPA	QPSK, 16QAM				
		HSUPA	BPSK				



4 MEASUREMENT INSTRUMENTS

RF Radiation Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2023.03.03	2024.03.02
Wireless Communications Test Set	R&S	CMW 500	117239	2023.03.01	2024.02.29
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2022.07.04	2023.07.03
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2022.09.29	2023.09.28
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2022.09.29	2023.09.28
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Video Controller	SKET	FCS C-3	N/A	N/A	N/A
Bilog Antenna	TESEQ	CBL6111D	34678	2022.09.30	2024.09.29
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2021.10.11	2023.10.10
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	N/A	N/A	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC Power Supply	Zhaoxin	RXN 605D	20R605D11010081	N/A	N/A
Test SW	EMC Test Software	15.2.0.339			
	EZ-EMC	Ver.STSLAB-03A1 RE			
RF Connected Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2023.03.03	2024.03.02
Wireless Communications Test Set	R&S	CMW 500	131428	2023.03.01	2024.02.29
Signal Analyzer	Agilent	N9020A	MY52440124	2023.03.01	2024.02.29
RF Automatic Test System	Maiwei	MW200-SFCB	N/A	N/A	N/A
Temperature & Humidity Test Chamber	Safety test	AG80L	171200018	2023.03.01	2024.02.29
Programmable Power Supply	Agilent	E3642A	MY40002025	2022.09.29	2023.09.28
Test SW	MTS 8200	2.0.0.0			

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

TEST OVERVIEW

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.

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

Note: Test data See Appendix 1.

5.2 PEAK TO AVERAGE RATIO

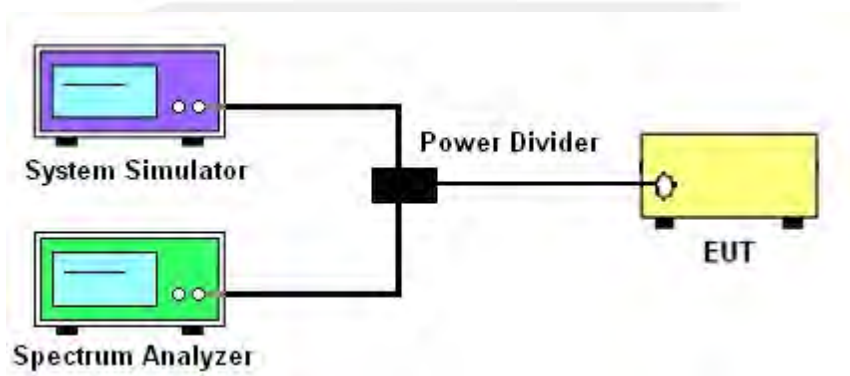
TEST OVERVIEW

According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 db.

TEST PROCEDURES

1. The testing follows FCC KDB 971168 v03r01 section.
2. The eut was connected to the spectrum analyzer and peak and av system simulator& spectrum analysis reads.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Set the test probe and measure average power of the spectrum analysis.

TEST SETUP



TEST RESULT

Note: Test data See Appendix 2.



5.3 TRANSMITTER RADIATED POWER (EIRP/ERP)

TEST OVERVIEW

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) 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 vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

TEST PROCEDURE

1. The testing follows FCC KDB 971168 Section 5.8 and ANSI C63.26-2015 Section 5.2.
2. The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.
3. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
4. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
5. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a nonradiating cable. The absolute levels of the spurious emissions were measured by the substitution.
6. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to ANSI C63.26-2015. 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.
 $EIRP = S.G \text{ Level} + \text{Gain} - \text{Cable loss}$; $ERP = S.G \text{ Level} + \text{Gain} - \text{Cable loss} - 2.15$.

TEST RESULT

Note: Test data See Appendix 3.

5.4 OCCUPIED BANDWIDTH

TEST OVERVIEW

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

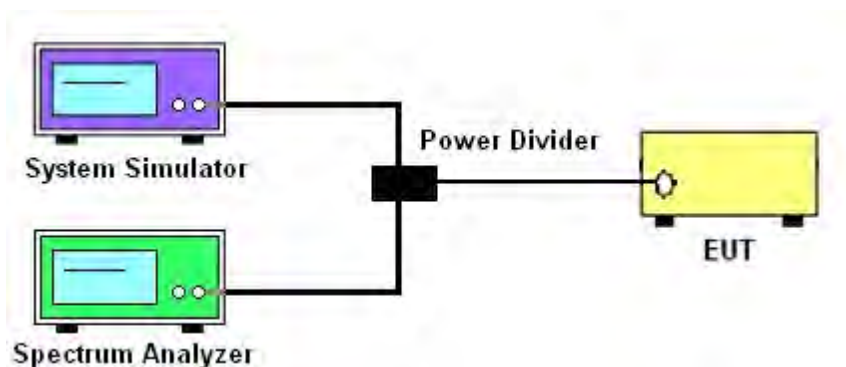
The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 Db below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

All modes of operation were investigated and the worst case configuration results are reported in this section.

TEST PROCEDURE

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

TEST SETUP



TEST RESULT

Note: Test data See Appendix 4.

5.5 FREQUENCY STABILITY

TEST OVERVIEW

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26 2015. The frequency stability of the transmitter is measured by:

- a.) Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

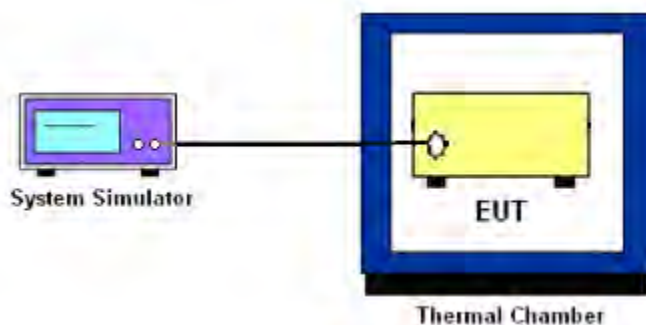
Temperature Variation

1. The testing follows FCC KDB 971168 D01 section 9.0
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

Voltage Variation

1. The testing follows FCC KDB 971168 D01 Section 9.0.
2. The EUT was placed in a temperature chamber at $25 \pm 5^\circ \text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

TEST SETUP



TEST RESULT

Note: Test data See Appendix 5.

5.6 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

TEST OVERVIEW

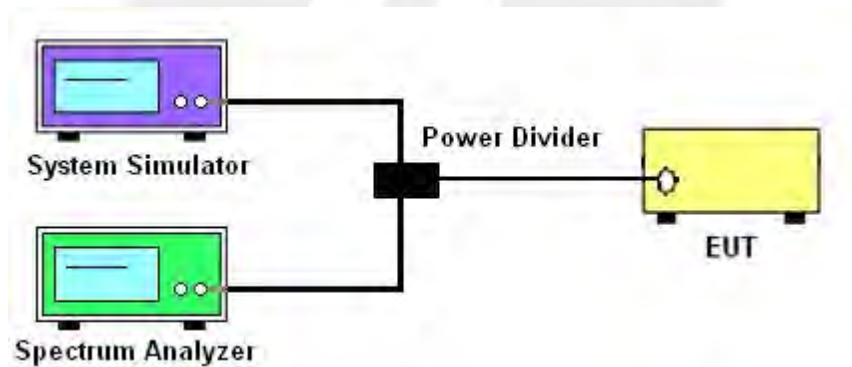
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

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 v03r01 Section 6.0 and ANSI C63.26-2015-Section 5.5.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

TEST SETUP



TEST RESULT

Note: Test data See Appendix 6.

5.7 BAND EDGE

TEST OVERVIEW

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

TEST PROCEDURE

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26-2015-Section 5.7.
2. Start and stop frequency were set such that the band edge would be placed in the center of the Plot.
3. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
4. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
5. The band edges of low and high channels for the highest RF powers were measured.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

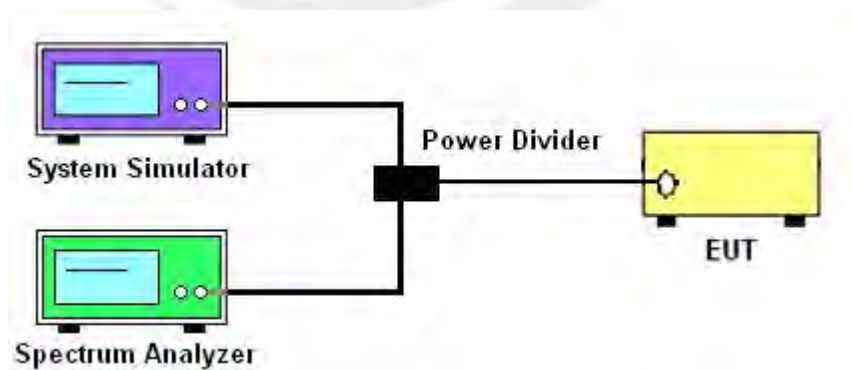
7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}.$$

TEST SETUP



TEST RESULT

Note: Test data See Appendix 7.



5.8 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.

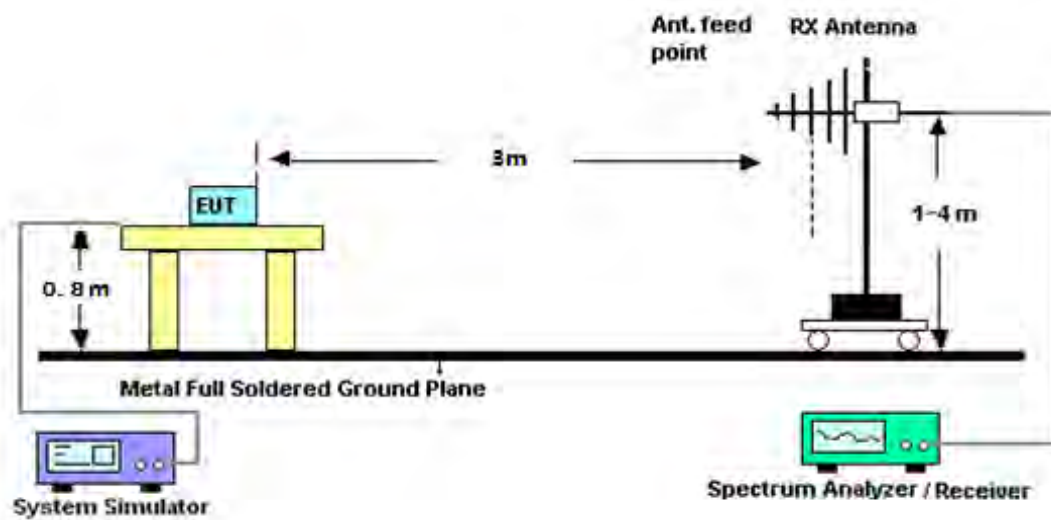
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

TEST PROCEDURE

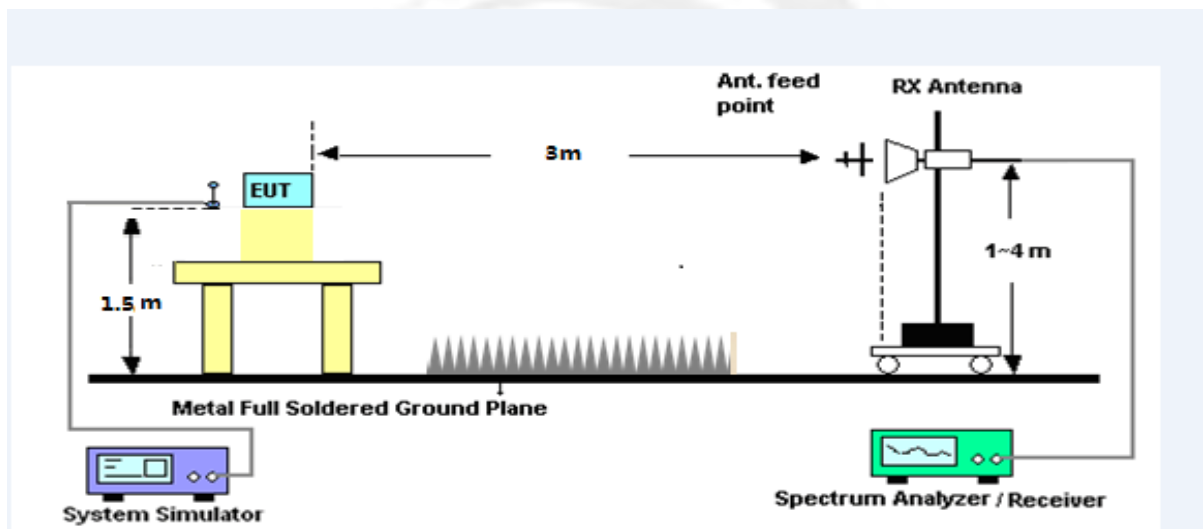
1. The testing FCC KDB 971168 D01 Section 5.8 and ANSI C63.26-2015-Section 5.5.
2. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $> 2 \times$ span/RBW
6. Detector = Peak
7. Trace mode = max hold
8. The trace was allowed to stabilize
9. Effective Isotropic Spurious Radiation was measured by substitution method according to TIA/EIA-603-E. 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: Test data See Appendix 8.



APPENDIX A.TESTRESULT

A1. CONDUCTED OUTPUT POWER

GSM 850:

GSM 850		
Mode	Frequency (MHz)	AVG Power(dBm)
GPRS (GMSK,1-Slot)	824.2	32.24
	836.6	32.22
	848.8	32.18
GPRS (GMSK,2-Slot)	824.2	31.80
	836.6	31.75
	848.8	31.74
GPRS (GMSK,3-Slot)	824.2	31.32
	836.6	31.27
	848.8	31.30
GPRS (GMSK,4-Slot)	824.2	30.90
	836.6	30.86
	848.8	30.86
EGPRS (8PSK,1-Slot)	824.2	28.69
	836.6	29.27
	848.8	28.96
EGPRS (8PSK,2-Slot)	824.2	27.89
	836.6	28.55
	848.8	28.20
EGPRS (8PSK,3-Slot)	824.2	27.16
	836.6	27.84
	848.8	27.43
EGPRS (8PSK,4-Slot)	824.2	26.42
	836.6	27.10
	848.8	26.66



PCS 1900:

PCS 1900		
Mode	Frequency (MHz)	AVG Power(dBm)
GPRS (GMSK,1-Slot)	1850.2	29.35
	1880.0	29.38
	1909.8	29.10
GPRS (GMSK,2-Slot)	1850.2	28.86
	1880.0	28.93
	1909.8	28.62
GPRS (GMSK,3-Slot)	1850.2	28.36
	1880.0	28.51
	1909.8	28.16
GPRS (GMSK,4-Slot)	1850.2	27.89
	1880.0	28.01
	1909.8	27.66
EGPRS (8PSK,1-Slot)	1850.2	27.53
	1880.0	27.42
	1909.8	27.01
EGPRS (8PSK,2-Slot)	1850.2	26.74
	1880.0	26.67
	1909.8	26.24
EGPRS (8PSK,3-Slot)	1850.2	26.02
	1880.0	25.91
	1909.8	25.47
EGPRS (8PSK,4-Slot)	1850.2	25.30
	1880.0	25.15
	1909.8	24.77



UMTS BAND V

UMTS BAND 5		
Mode	Frequency(MHz)	AVG Power
WCDMA 850 RMC	826.4	22.14
	836.6	22.83
	846.6	23.05
HSDPA Subtest 1	826.4	21.73
	836.6	22.63
	846.6	22.96
HSDPA Subtest 2	826.4	21.25
	836.6	22.19
	846.6	22.52
HSDPA Subtest 3	826.4	20.81
	836.6	21.75
	846.6	22.09
HSDPA Subtest 4	826.4	20.47
	836.6	21.37
	846.6	21.62
HSUPA Subtest 1	826.4	21.55
	836.6	22.53
	846.6	22.90
HSUPA Subtest 2	826.4	20.65
	836.6	21.54
	846.6	21.94
HSUPA Subtest 3	826.4	20.62
	836.6	21.08
	846.6	21.62
HSUPA Subtest 4	826.4	20.26
	836.6	20.73
	846.6	21.18
HSUPA Subtest 5	826.4	18.81
	836.6	19.31
	846.6	19.72



UMTS BAND II

UMTS BAND 2		
Mode	Frequency(MHz)	AVG Power
WCDMA 1900 RMC	1852.4	22.68
	1880	22.31
	1907.6	22.48
HSDPA Subtest 1	1852.4	22.62
	1880	22.29
	1907.6	22.40
HSDPA Subtest 2	1852.4	22.20
	1880	21.84
	1907.6	21.94
HSDPA Subtest 3	1852.4	21.72
	1880	21.43
	1907.6	21.63
HSDPA Subtest 4	1852.4	21.25
	1880	20.93
	1907.6	21.23
HSUPA Subtest 1	1852.4	22.56
	1880	22.14
	1907.6	22.31
HSUPA Subtest 2	1852.4	21.70
	1880	21.22
	1907.6	21.33
HSUPA Subtest 3	1852.4	21.68
	1880	20.74
	1907.6	20.95
HSUPA Subtest 4	1852.4	21.28
	1880	20.27
	1907.6	20.53
HSUPA Subtest 5	1852.4	19.86
	1880	18.78
	1907.6	19.12



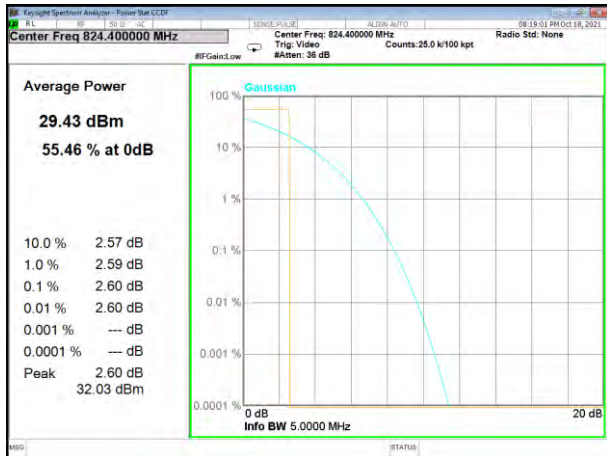
A2. PEAK-TO-AVERAGE RADIO

GSM 850		
Mode	Frequency (MHz)	PAR
GPRS 850	824.2	2.60
	836.6	2.59
	848.8	2.88
EGPRS 850	824.2	5.38
	836.6	5.56
	848.8	5.18

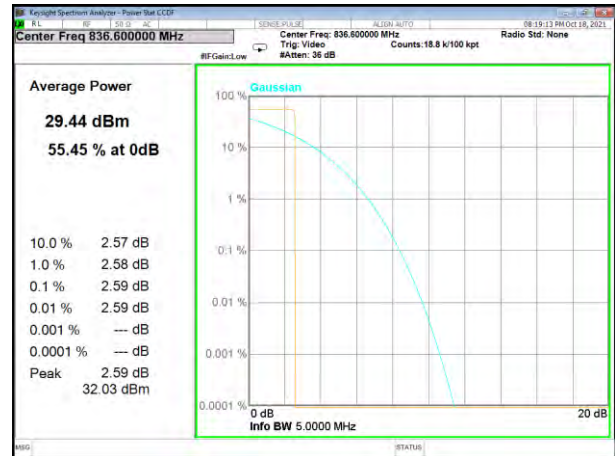
PCS 1900		
Mode	Frequency (MHz)	PAR
GPRS1900	1850.2	5.18
	1880	5.26
	1909.8	5.16
EGPRS1900	1850.2	5.27
	1880	5.27
	1909.8	5.34

UMTS Band 2		
Mode	Frequency (MHz)	PAR
WCDMA 1900 RMC	1852.4	2.80
	1880	2.89
	1907.6	2.76
HSDPA 1900	1852.4	2.90
	1880	3.10
	1907.6	3.07
HSUPA 1900	1852.4	2.75
	1880	2.88
	1907.6	2.73

UMTS Band 5		
Mode	Frequency (MHz)	PAR
WCDMA 850 RMC	826.4	3.05
	836.6	2.88
	846.6	2.97
HSDPA 850	826.4	3.17
	836.6	2.98
	846.6	3.14
HSUPA 850	826.4	3.11
	836.6	2.86
	846.6	3.00



GPRS850_Lower



GPRS850_Middle



GPRS850_Higher



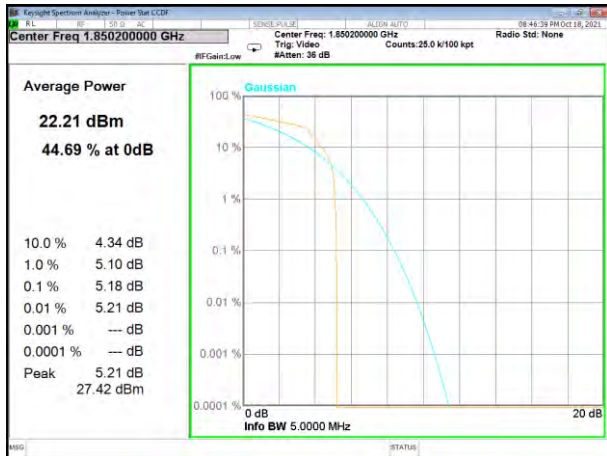
EGPRS850_Low



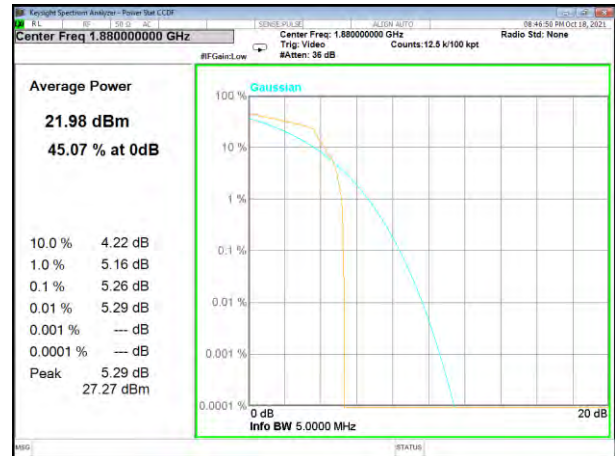
EGPRS850_Middle



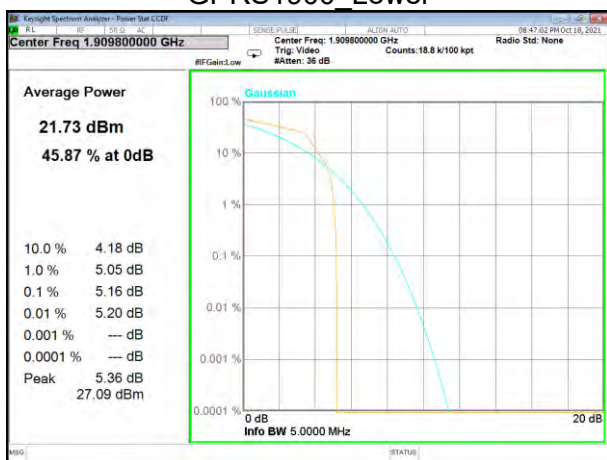
EGPRS850_High



GPRS1900_Lower



GPRS1900_Middle



GPRS1900_Higher



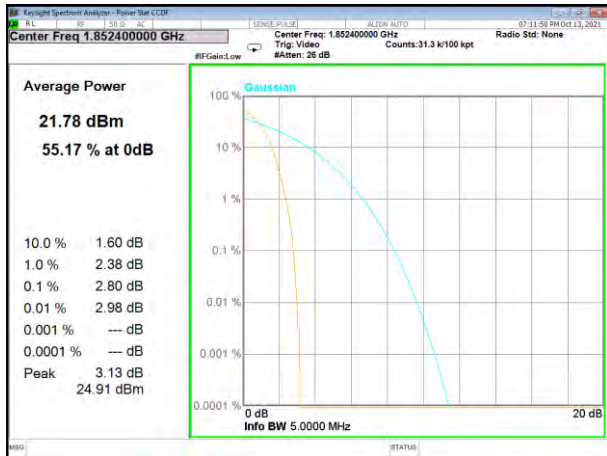
EGPRS1900_Low



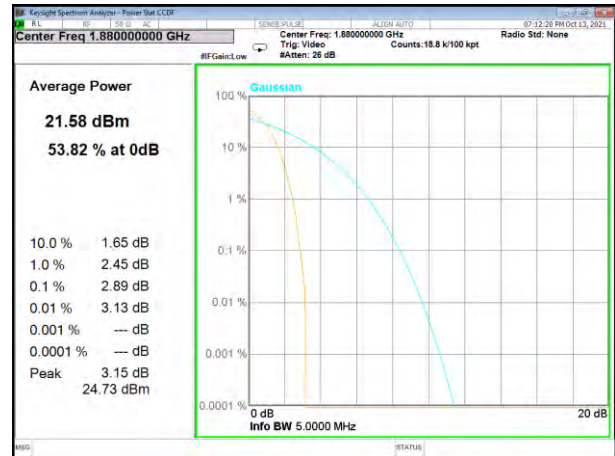
EGPRS1900_Middle



EGPRS1900_High



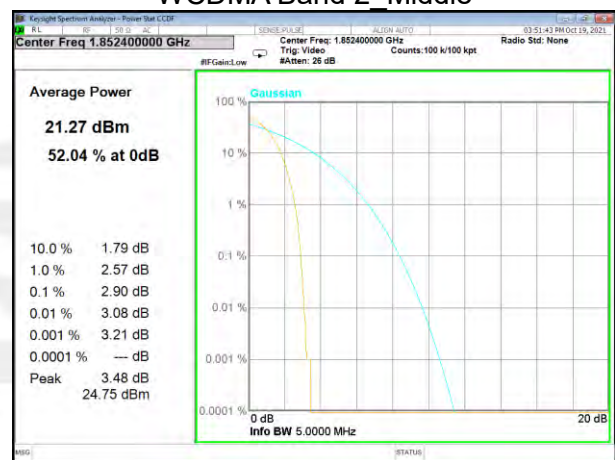
WCDMA Band 2_Low



WCDMA Band 2_Middle



WCDMA Band 2_High



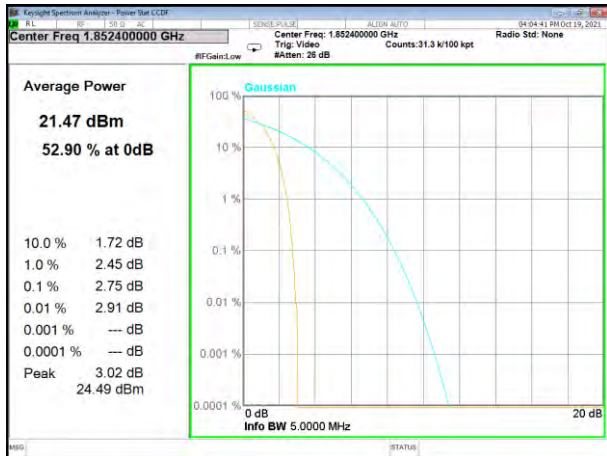
HSDPA Band 2_Low



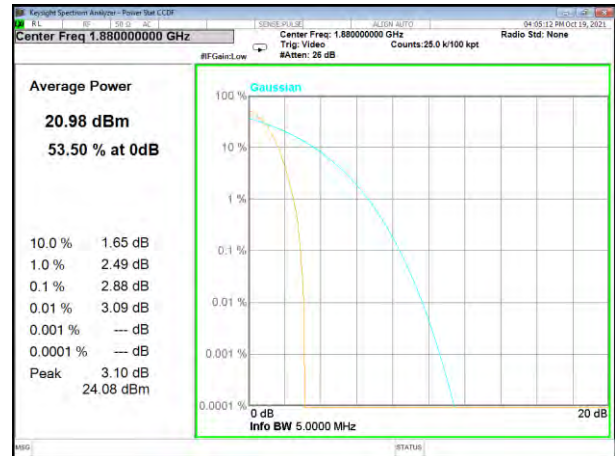
HSDPA Band 2_Middle



HSDPA Band 2_High



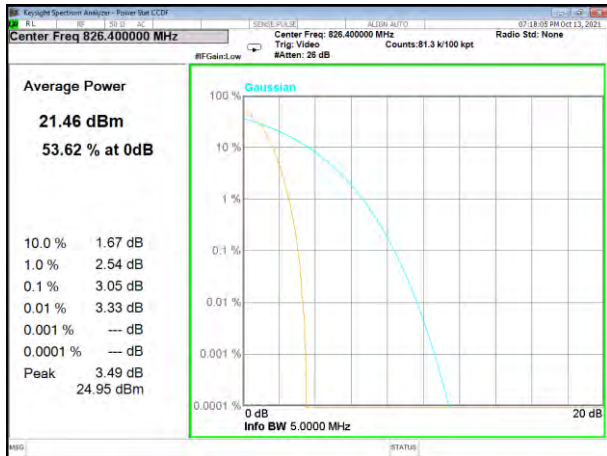
HSUPA Band 2_Low



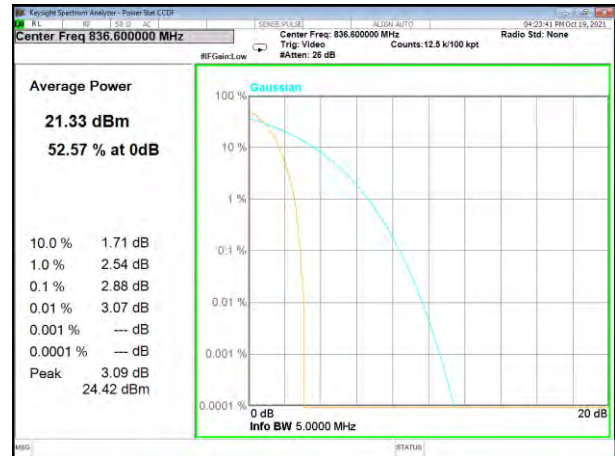
HSUPA Band 2_Middle



HSUPA Band 2_High



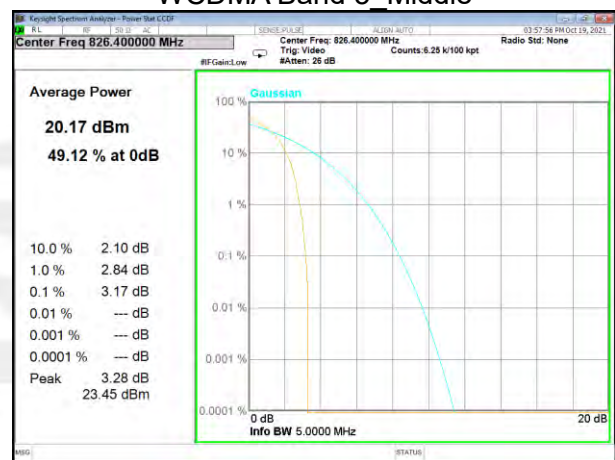
WCDMA Band 5_Low



WCDMA Band 5_Middle



WCDMA Band 5_High



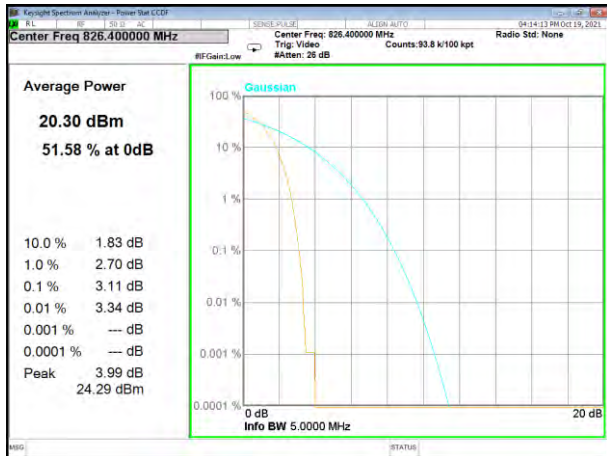
HSDPA Band 5_Low



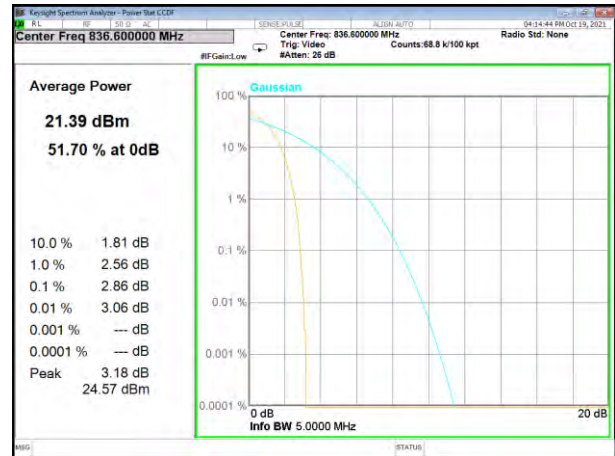
HSDPA Band 5_Middle



HSDPA Band 5_High



HSPA Band 5_Low



HSPA Band 5_Middle



HSPA Band 5_High



A3. TRANSMITTER RADIATED POWER (EIRP/ERP)

Note: Test is divided into three directions, X/Y/Z. X pattern for the worst

Radiated Power (ERP) for GSM 850 MHZ								
Mode	Frequency	Result						Conclusion
		S G.Level (dBm)	Cable loss	Gain(dBi)	correction factor(dB)	PMeas E.R.P(dBm)	Polarization Of Max. ERP	
GPRS850	824.2	25.24	0.44	6.5	2.15	29.15	Horizontal	Pass
	824.2	27.71	0.44	6.5	2.15	31.62	Vertical	Pass
	836.6	25.60	0.45	6.5	2.15	29.50	Horizontal	Pass
	836.6	27.67	0.45	6.5	2.15	31.57	Vertical	Pass
	848.8	25.22	0.46	6.5	2.15	29.11	Horizontal	Pass
	848.8	27.52	0.46	6.5	2.15	31.41	Vertical	Pass
EGPRS850	824.2	21.89	0.44	6.5	2.15	25.80	Horizontal	Pass
	824.2	24.15	0.44	6.5	2.15	28.06	Vertical	Pass
	836.6	22.20	0.45	6.5	2.15	26.10	Horizontal	Pass
	836.6	24.68	0.45	6.5	2.15	28.58	Vertical	Pass
	848.8	22.24	0.46	6.5	2.15	26.13	Horizontal	Pass
	848.8	24.50	0.46	6.5	2.15	28.39	Vertical	Pass
Limit	ERP<7W=38.45dBm							

Radiated Power (EIRP) for PCS 1900 MHZ							
Mode	Frequency	Result					Conclusion
		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
GPRS1900	1850.2	18.07	2.41	10.35	26.01	Horizontal	Pass
	1850.2	20.4	2.41	10.35	28.34	Vertical	Pass
	1880	18.1	2.42	10.35	26.03	Horizontal	Pass
	1880	20.25	2.42	10.35	28.18	Vertical	Pass
	1909.8	17.9	2.43	10.35	25.82	Horizontal	Pass
	1909.8	20.08	2.43	10.35	28.00	Vertical	Pass
EGPRS1900	1850.2	16.68	2.41	10.35	24.62	Horizontal	Pass
	1850.2	18.99	2.41	10.35	26.93	Vertical	Pass
	1880	16.77	2.42	10.35	24.70	Horizontal	Pass
	1880	18.81	2.42	10.35	26.74	Vertical	Pass
	1909.8	16.26	2.43	10.35	24.18	Horizontal	Pass
	1909.8	18.39	2.43	10.35	26.31	Vertical	Pass
Limit	EIRP<2W=33dBm						



Radiated Power (EIRP) for WCDMA Band 2							
Mode	Frequency	Result					Conclusion
		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
WCDMA	1852.4	12.37	2.41	10.35	20.31	Horizontal	Pass
	1852.4	14.13	2.41	10.35	22.07	Vertical	Pass
	1880	12.12	2.42	10.35	20.05	Horizontal	Pass
	1880	13.86	2.42	10.35	21.79	Vertical	Pass
	1907.4	12.05	2.43	10.35	19.97	Horizontal	Pass
	1907.4	13.99	2.43	10.35	21.91	Vertical	Pass
HSUPA	1852.4	11.93	2.41	10.35	19.87	Horizontal	Pass
	1852.4	13.86	2.41	10.35	21.80	Vertical	Pass
	1880	11.91	2.42	10.35	19.84	Horizontal	Pass
	1880	13.81	2.42	10.35	21.74	Vertical	Pass
	1907.4	12.02	2.43	10.35	19.94	Horizontal	Pass
	1907.4	13.83	2.43	10.35	21.75	Vertical	Pass
HSDPA	1852.4	12.21	2.41	10.35	20.15	Horizontal	Pass
	1852.4	14.04	2.41	10.35	21.98	Vertical	Pass
	1880	11.86	2.42	10.35	19.79	Horizontal	Pass
	1880	13.65	2.42	10.35	21.58	Vertical	Pass
	1907.4	11.57	2.43	10.35	19.49	Horizontal	Pass
	1907.4	13.49	2.43	10.35	21.41	Vertical	Pass
Limit	EIRP<2W=33dBm						

Radiated Power (ERP) for WCDMA Band 5								
Mode	Frequency	Result						Conclusion
		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P(dBm)	Polarization Of Max. ERP	
WCDMA	826.4	15.71	0.44	6.5	2.15	19.62	Horizontal	Pass
	826.4	17.65	0.44	6.5	2.15	21.56	Vertical	Pass
	836.6	16.66	0.45	6.5	2.15	20.56	Horizontal	Pass
	836.6	18.37	0.45	6.5	2.15	22.27	Vertical	Pass
	846.4	16.76	0.46	6.5	2.15	20.65	Horizontal	Pass
	846.4	18.48	0.46	6.5	2.15	22.37	Vertical	Pass
HSUPA	826.4	15.36	0.44	6.5	2.15	19.27	Horizontal	Pass
	826.4	17.19	0.44	6.5	2.15	21.10	Vertical	Pass
	836.6	16.23	0.45	6.5	2.15	20.13	Horizontal	Pass
	836.6	17.96	0.45	6.5	2.15	21.86	Vertical	Pass
	846.4	16.79	0.46	6.5	2.15	20.68	Horizontal	Pass
	846.4	18.50	0.46	6.5	2.15	22.39	Vertical	Pass
HSDPA	826.4	15.14	0.44	6.5	2.15	19.05	Horizontal	Pass
	826.4	16.92	0.44	6.5	2.15	20.83	Vertical	Pass
	836.6	16.19	0.45	6.5	2.15	20.09	Horizontal	Pass
	836.6	18.10	0.45	6.5	2.15	22.00	Vertical	Pass
	846.4	16.51	0.46	6.5	2.15	20.40	Horizontal	Pass
	846.4	18.38	0.46	6.5	2.15	22.27	Vertical	Pass
Limit	ERP<7W=38.45dBm							



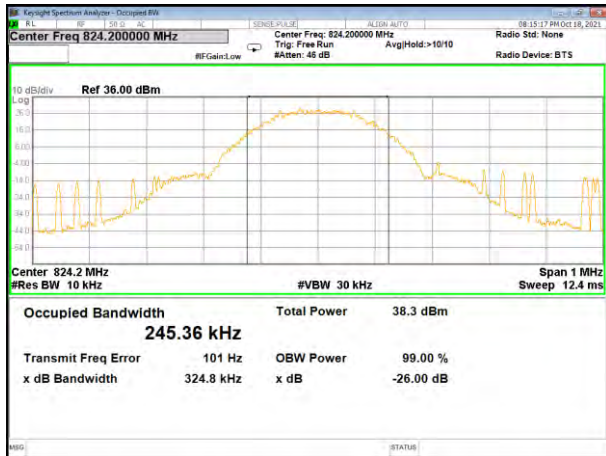
A4. OCCUPIED BANDWIDTH (99% OCCUPIED BANDWIDTH/26dB BANDWIDTH)

GSM Bandwidth [KHz]						
Mode	Lowest		Middle		Highest	
	99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
GPRS850	245.36	324.8	241.66	315.8	243.43	313.6
EGPRS850	244.81	312.3	240.62	314.2	243.82	311.6

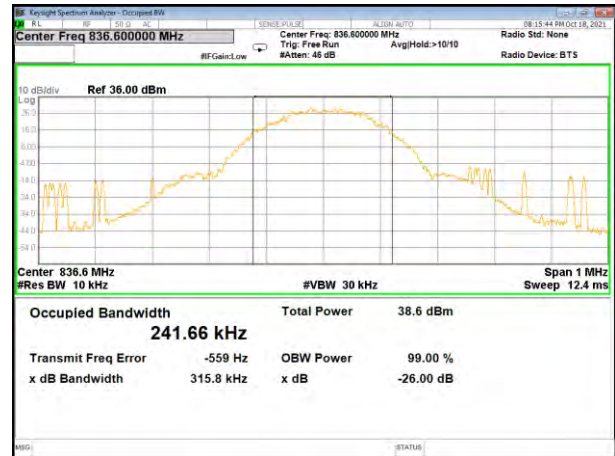
GSM Bandwidth [KHz]						
Mode	Lowest		Middle		Highest	
	99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
GPRS1900	244.89	314	245.84	301.6	250.06	308.5
EGPRS1900	247.15	317	249.33	318.4	246.88	324.3

WCDMA Bandwidth [MHz]						
Mode	Lowest		Middle		Highest	
	99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
WCDMA 2	4.1471	4.652	4.153	4.652	4.148	4.661
HSDPA 2	4.149	4.667	4.153	4.641	4.146	4.658
HSUPA 2	4.16	4.659	4.159	4.664	4.149	4.657

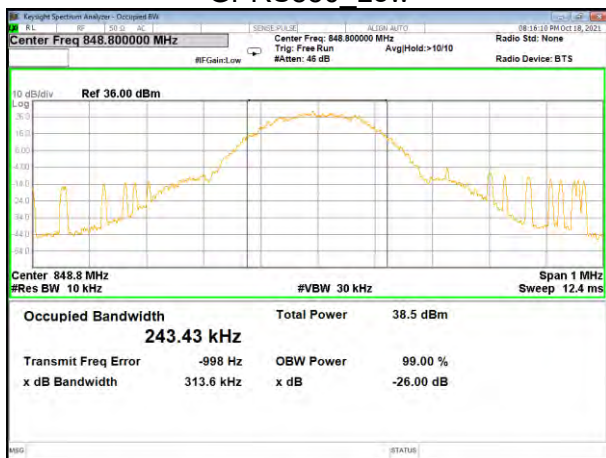
WCDMA Bandwidth [MHz]						
Mode	Lowest		Middle		Highest	
	99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
WCDMA 5	4.151	4.647	4.142	4.662	4.117	4.645
HSDPA 5	4.15	4.644	4.143	4.675	4.128	4.648
HSUPA 5	4.155	4.647	4.1433	4.684	4.119	4.628



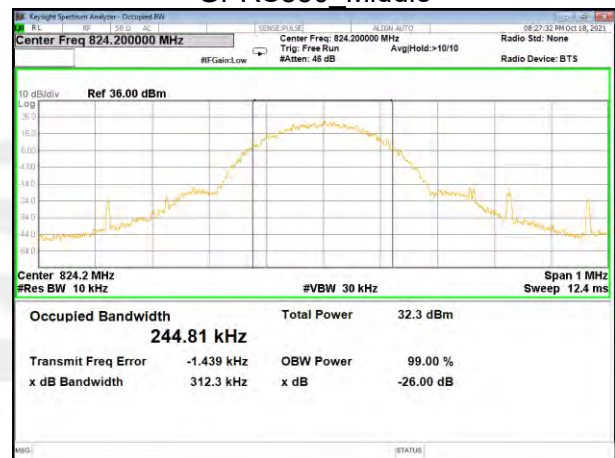
GPRS850_Low



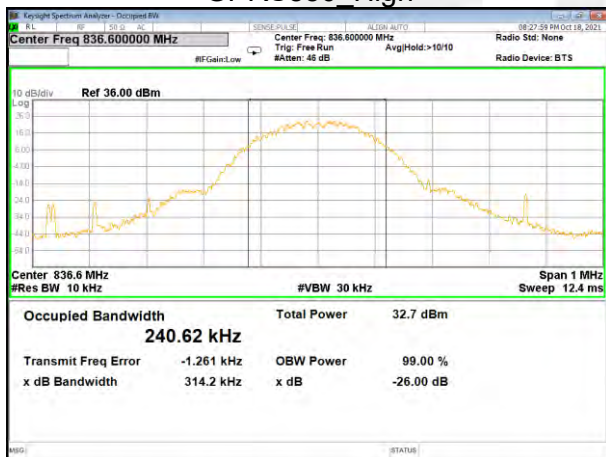
GPRS850_Middle



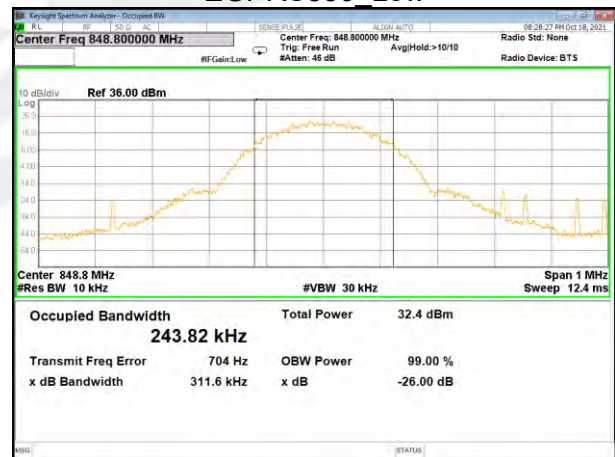
GPRS850_High



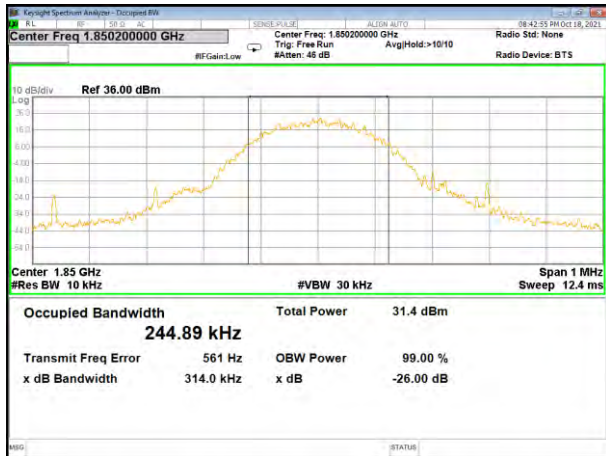
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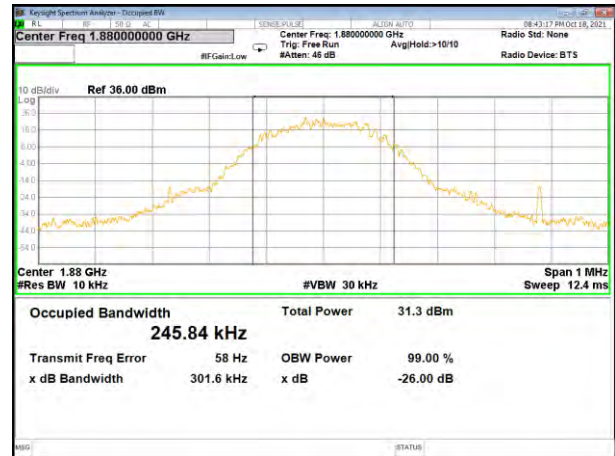
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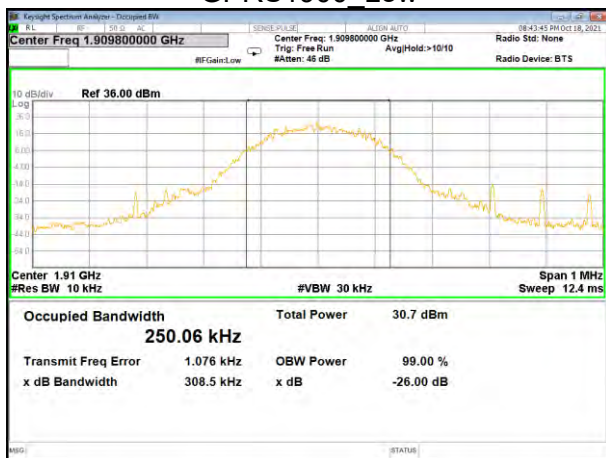
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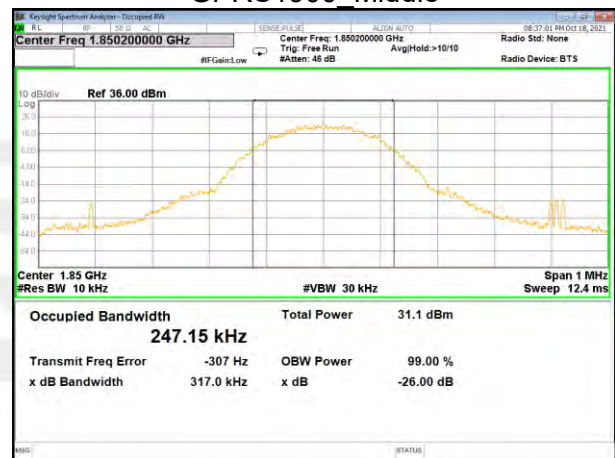
GPRS1900_Low



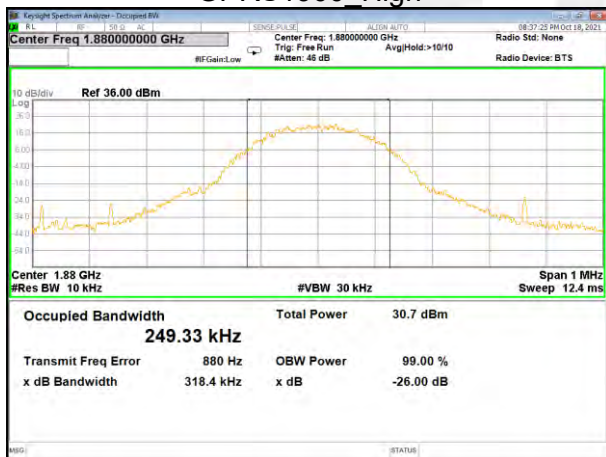
GPRS1900_Middle



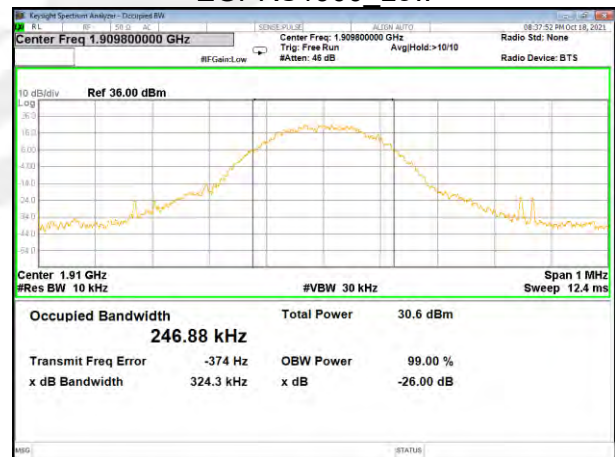
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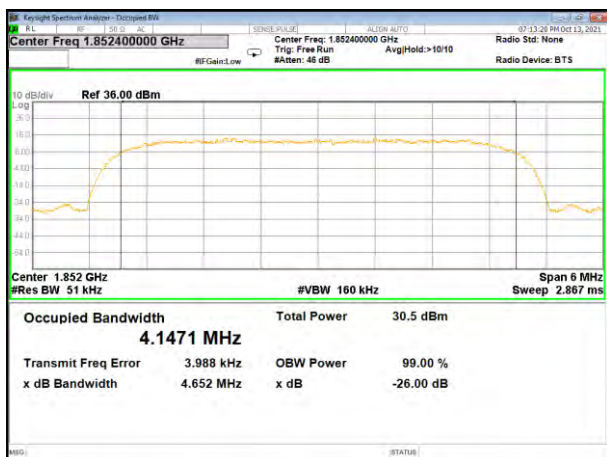
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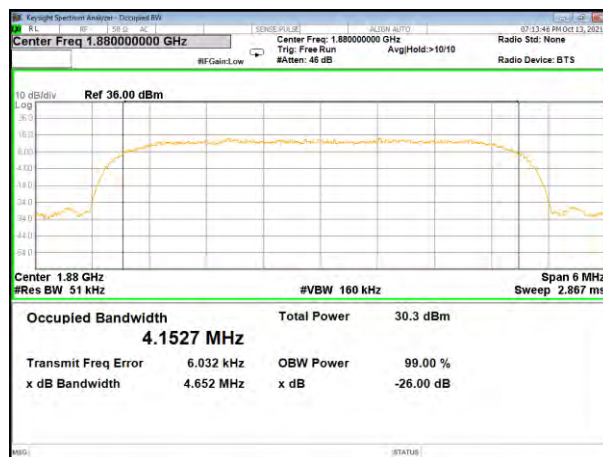
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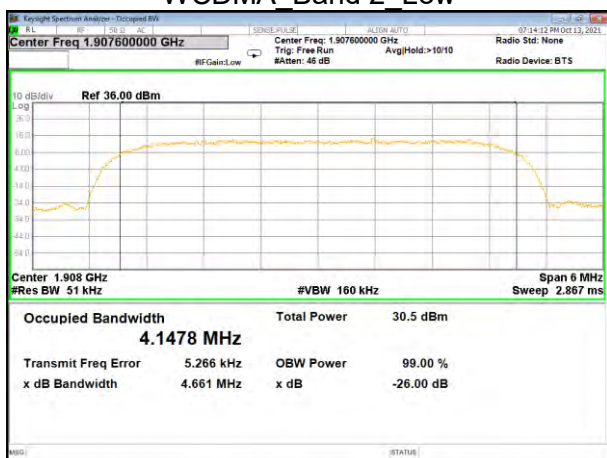
EGPRS1900_High



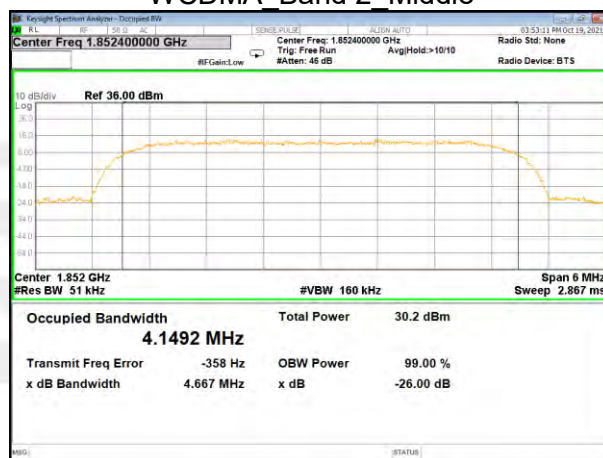
WCDMA Band 2 Low



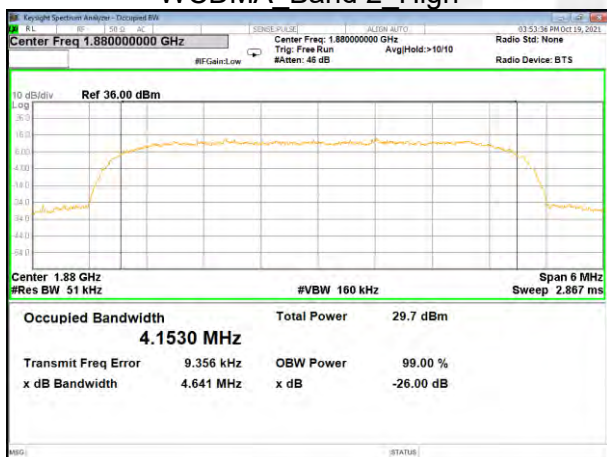
WCDMA Band 2 Middle



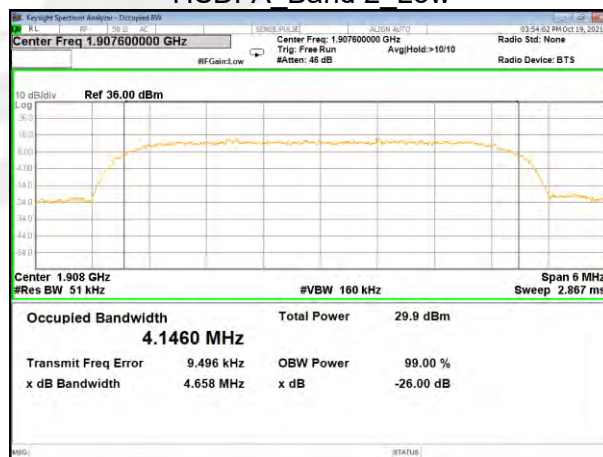
WCDMA Band 2 High



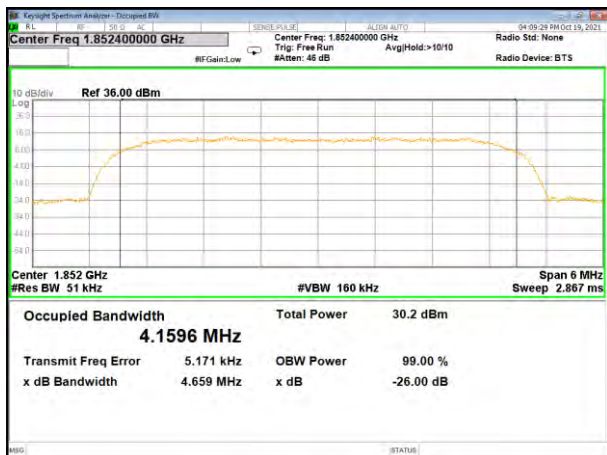
HSDPA Band 2 Low



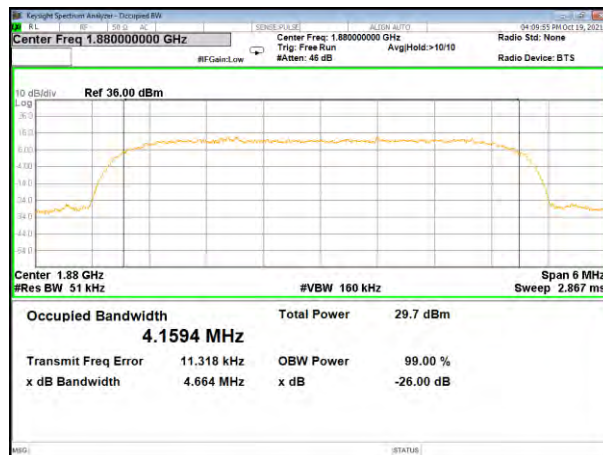
HSDPA_Band 2_Middle



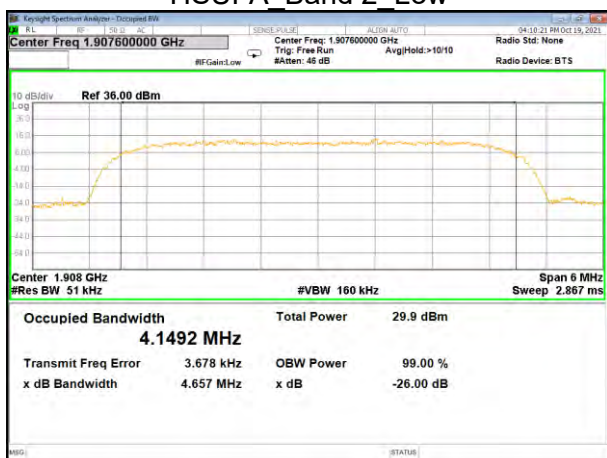
HSDPA_Band 2_High



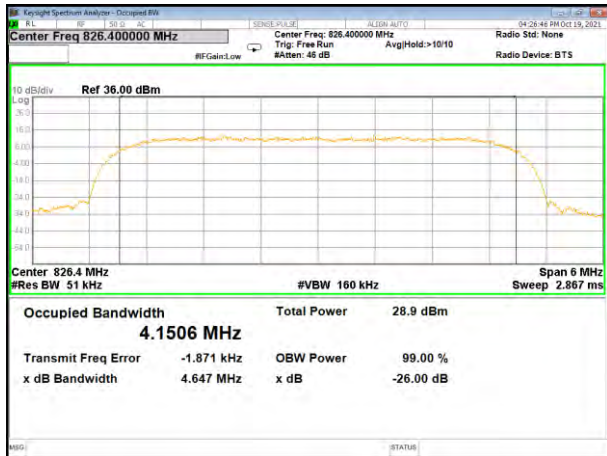
HSUPA_Band 2_Low



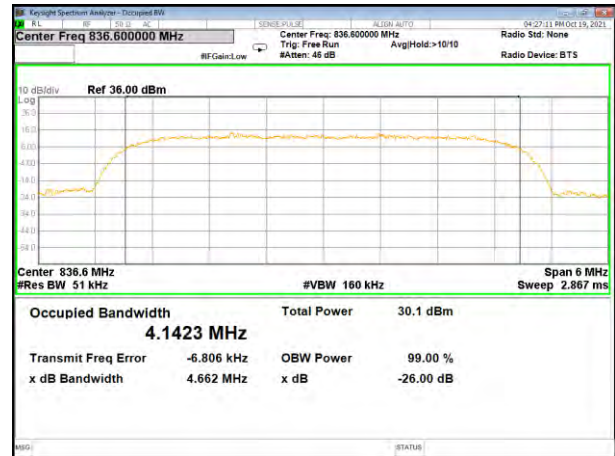
HSUPA_Band 2_Middle



HSUPA_Band 2_High



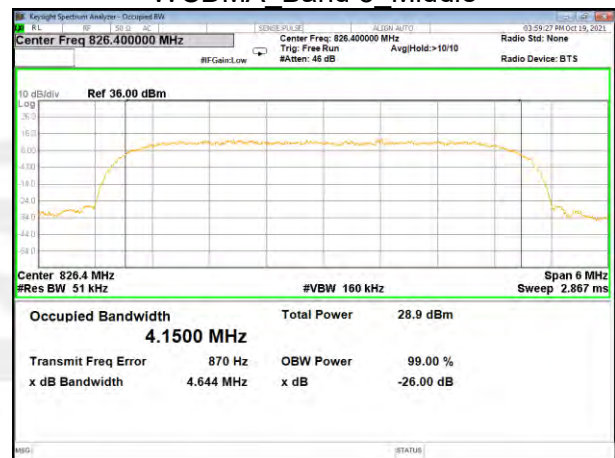
WCDMA Band 5 Low



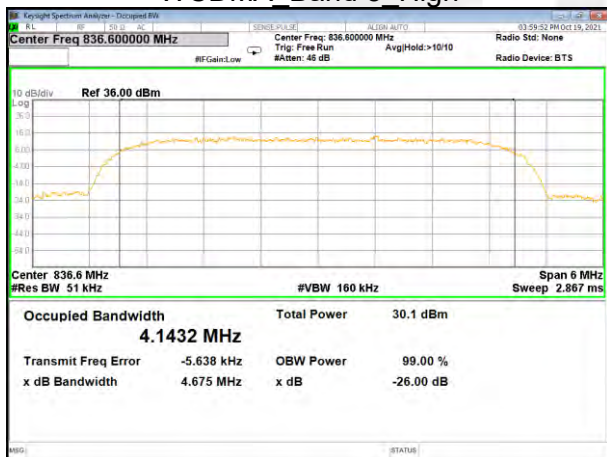
WCDMA Band 5 Middle



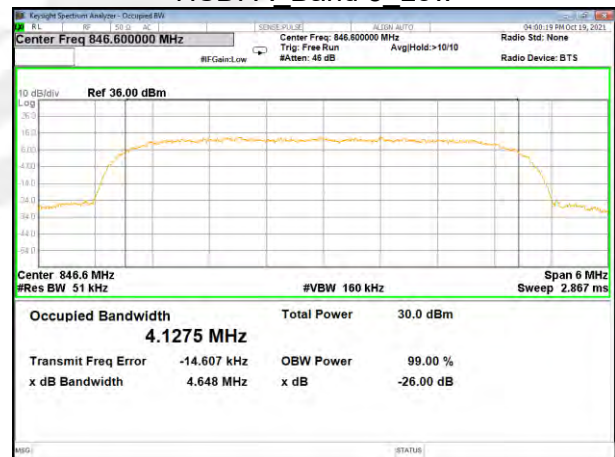
WCDMA Band 5 High



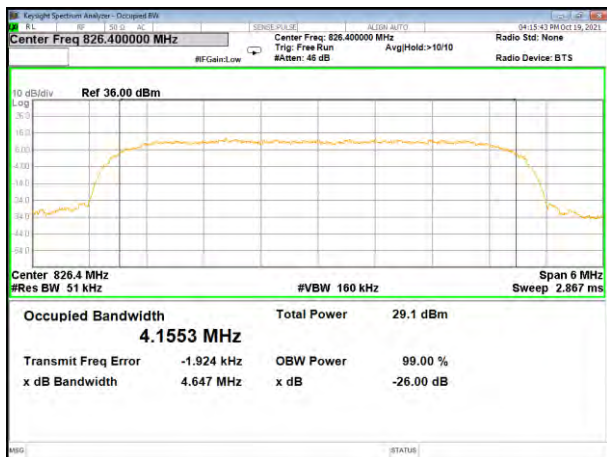
HSDPA Band 5 Low



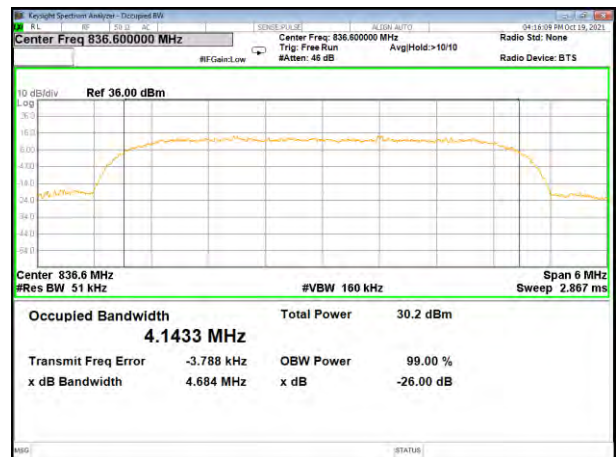
HSDPA_Band 5_Middle



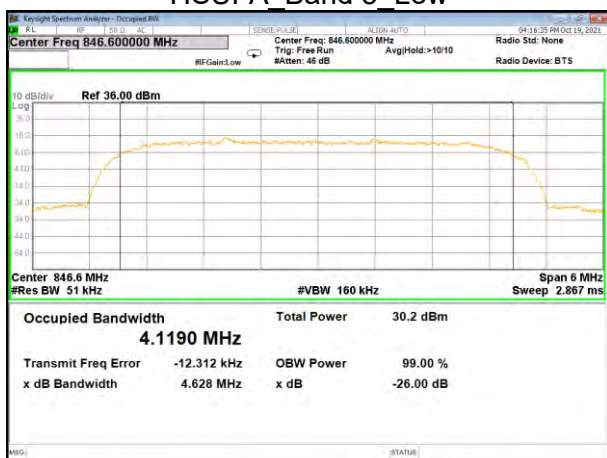
HSDPA_Band 5_High



HSUPA_Band 5_Low



HSUPA_Band 5_Middle



HSUPA_Band 5_High



A5. FREQUENCY STABILITY

Normal Voltage = 3.7V; Battery End Point (BEP) = 3.3V; Maximum Voltage = 4.2V

GPRS 850 /836.6MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	33.23	0.040	2.5ppm	PASS
40		31.49	0.038		
30		30.22	0.036		
20		22.81	0.027		
10		17.49	0.021		
0		32.24	0.039		
-10		31.35	0.037		
-20		16.26	0.019		
-30		19.41	0.023		
20	Maximum Voltage	31.50	0.038		
20	BEP	18.42	0.022		

EGPRS 850 /836.6MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	33.27	0.040	2.5ppm	PASS
40		36.22	0.043		
30		24.14	0.029		
20		34.70	0.041		
10		20.37	0.024		
0		24.69	0.030		
-10		23.07	0.028		
-20		31.36	0.037		
-30		31.31	0.037		
20	Maximum Voltage	12.82	0.015		
20	BEP	16.71	0.020		

GPRS 1900 / 1880MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	35.45	0.019	Within Authorized Band	PASS
40		13.02	0.007		
30		35.87	0.019		
20		25.39	0.014		
10		29.74	0.016		
0		27.21	0.014		
-10		26.34	0.014		
-20		36.31	0.019		
-30		22.48	0.012		
20	Maximum Voltage	11.56	0.006		
20	BEP	17.94	0.010		



EGPRS 1900 / 1880MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	32.34	0.017	Within Authorized Band	PASS
40		27.33	0.015		
30		13.40	0.007		
20		13.86	0.007		
10		22.31	0.012		
0		24.91	0.013		
-10		20.00	0.011		
-20		23.59	0.013		
-30		29.06	0.015		
20	Maximum Voltage	17.93	0.010		
20	BEP	24.51	0.013		

UMTS Band 2 /1880MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	25.78	0.014	Within Authorized Band	PASS
40		17.36	0.009		
30		31.82	0.017		
20		20.28	0.011		
10		36.39	0.019		
0		35.18	0.019		
-10		34.23	0.018		
-20		17.33	0.009		
-30		18.22	0.010		
20	Maximum Voltage	30.02	0.016		
20	BEP	13.88	0.007		



HSDPA Band 2 / 1880MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	31.05	0.017	Within Authorized Band	PASS
40		20.64	0.011		
30		14.52	0.008		
20		33.07	0.018		
10		22.39	0.012		
0		18.20	0.010		
-10		36.21	0.019		
-20		12.85	0.007		
-30		35.38	0.019		
20	Maximum Voltage	16.08	0.009		
20	BEP	31.52	0.017		

HSUPA Band 2 / 1880MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	22.45	0.012	Within Authorized Band	PASS
40		29.35	0.016		
30		16.07	0.009		
20		35.11	0.019		
10		29.00	0.015		
0		24.70	0.013		
-10		25.04	0.013		
-20		26.08	0.014		
-30		13.44	0.007		
20	Maximum Voltage	23.21	0.012		
20	BEP	15.44	0.008		

UMTS Band 5 / 836.6MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	36.05	0.043	2.5ppm	PASS
40		21.47	0.026		
30		15.32	0.018		
20		18.63	0.022		
10		18.38	0.022		
0		33.00	0.039		
-10		13.55	0.016		
-20		13.46	0.016		
-30		33.66	0.040		
20	Maximum Voltage	31.97	0.038		
20	BEP	25.68	0.031		



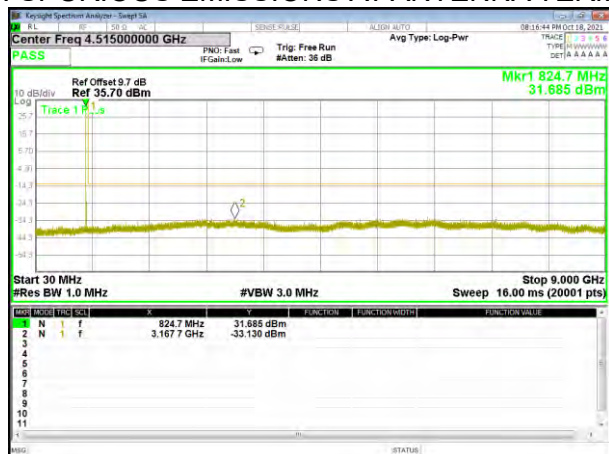
HSDPA Band 5 / 836.6MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)		(ppm)		
50	Normal Voltage	35.07	0.042	2.5ppm	PASS
40		18.92	0.023		
30		20.91	0.025		
20		12.75	0.015		
10		17.99	0.022		
0		30.50	0.036		
-10		18.80	0.022		
-20		15.13	0.018		
-30		25.72	0.031		
20	Maximum Voltage	36.28	0.043		
20	BEP	16.81	0.020		

HSUPA Band 5 / 836.6MHz					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	14.54	0.017	2.5ppm	PASS
40		20.78	0.025		
30		30.13	0.036		
20		17.98	0.021		
10		20.61	0.025		
0		25.61	0.031		
-10		29.23	0.035		
-20		25.62	0.031		
-30		30.71	0.037		
20	Maximum Voltage	20.32	0.024		
20	BEP	18.33	0.022		

1. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



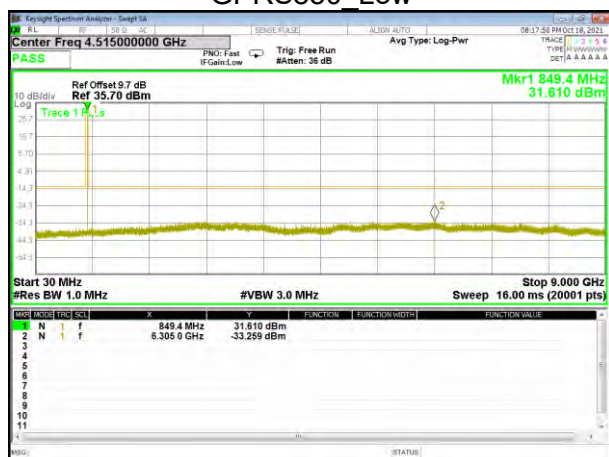
A6. SPURIOUS EMISSIONS AT ANTENNA TERMINALS



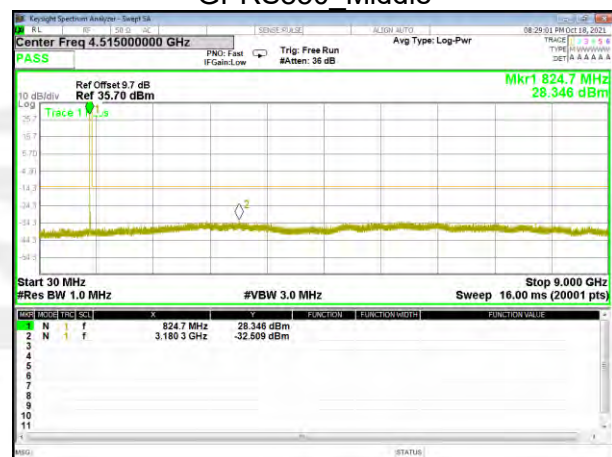
GPRS850 Low



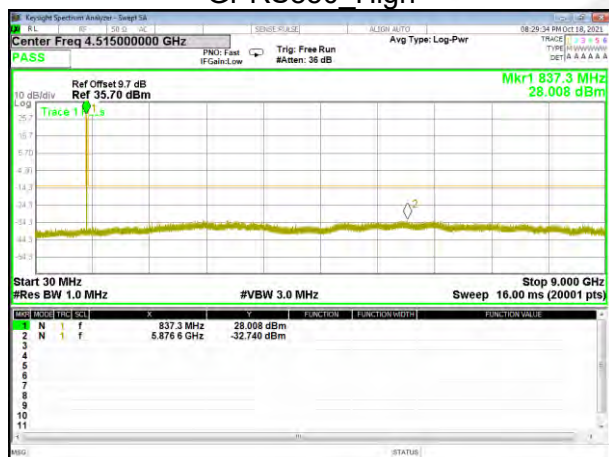
GPRS850 Middle



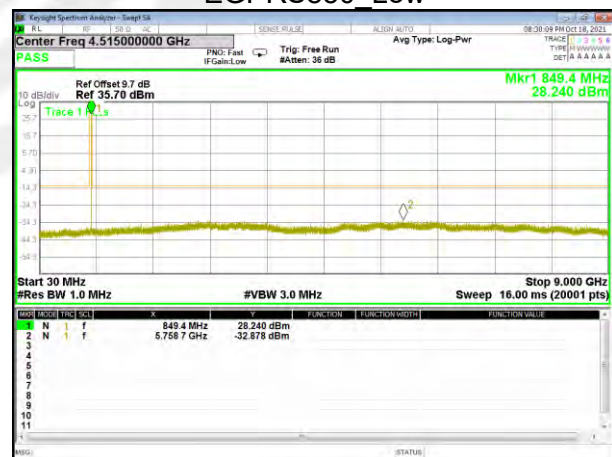
GPRS850 High



EGPRS850 Low



EGPRS850_Middle



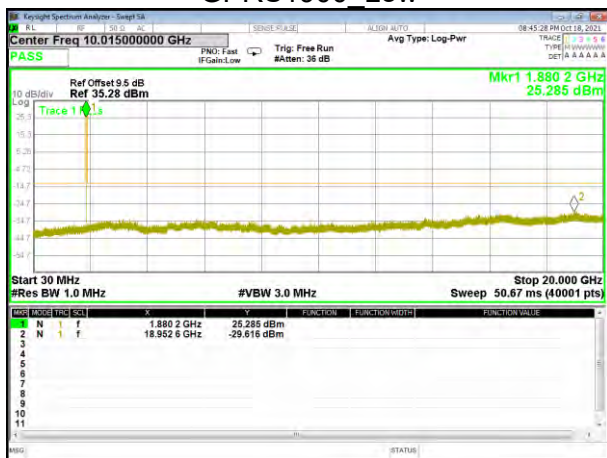
EGPRS850_High



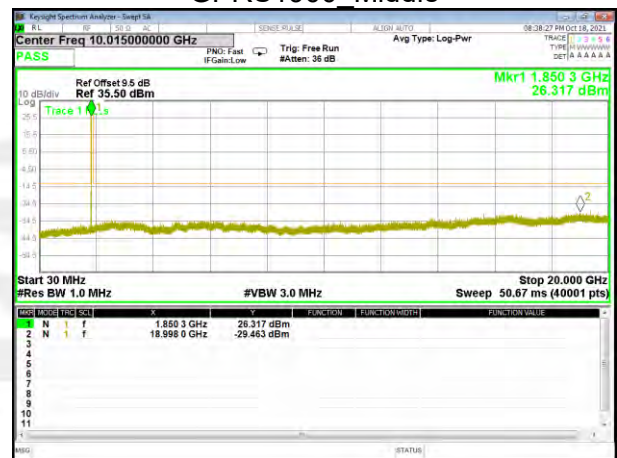
GPRS1900_Low



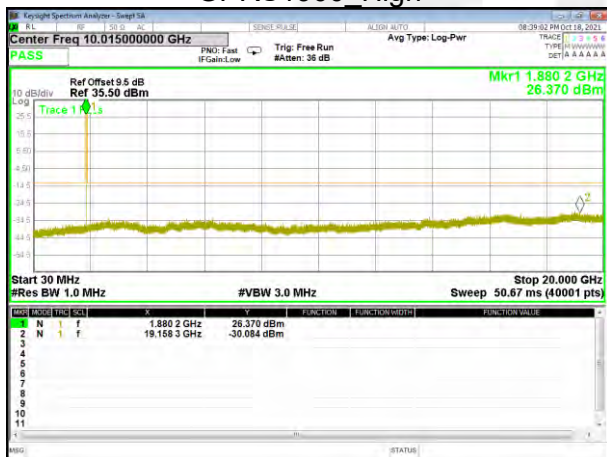
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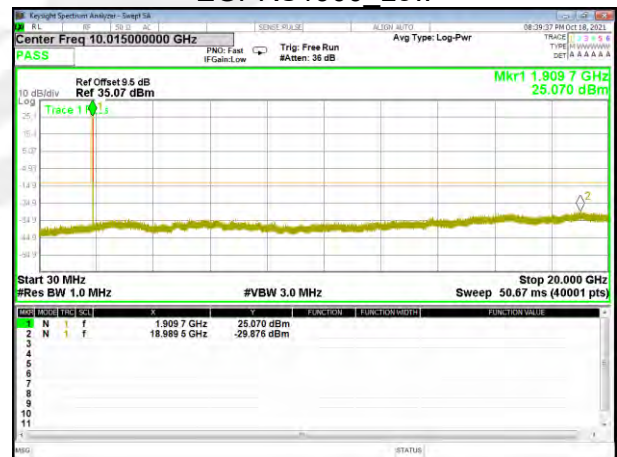
GPRS1900_High



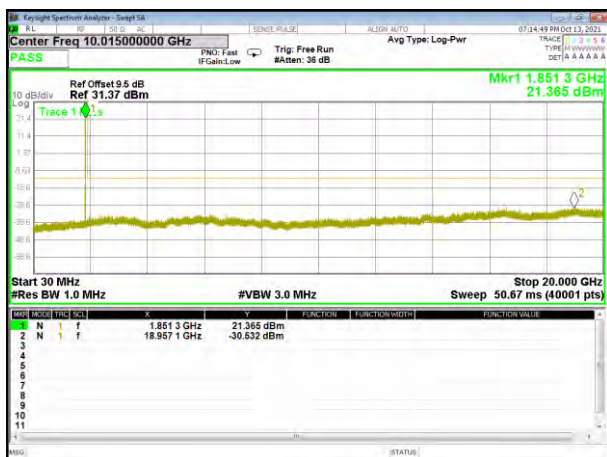
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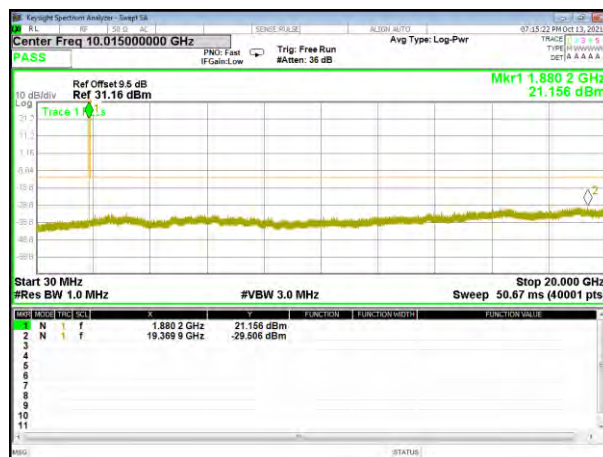
EGPRS1900_Middle



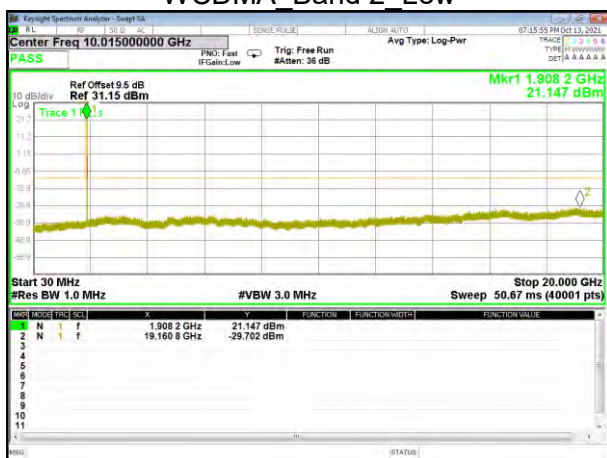
EGPRS1900_High



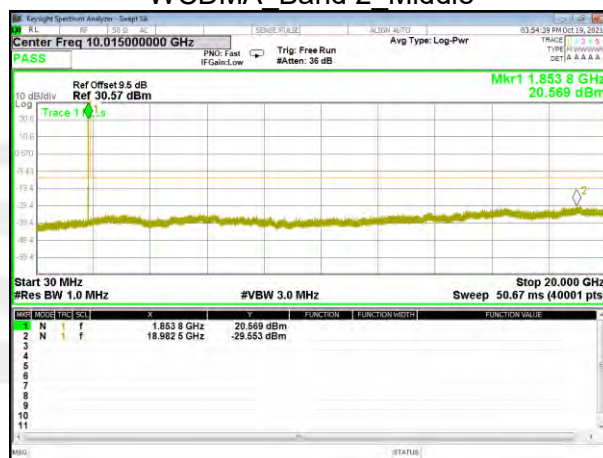
WCDMA Band 2 Low



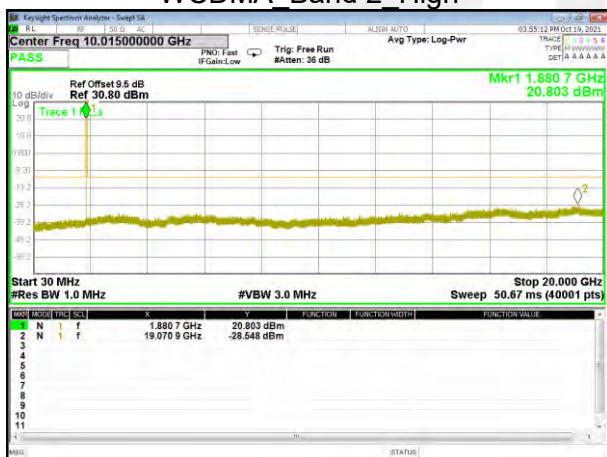
WCDMA Band 2 Middle



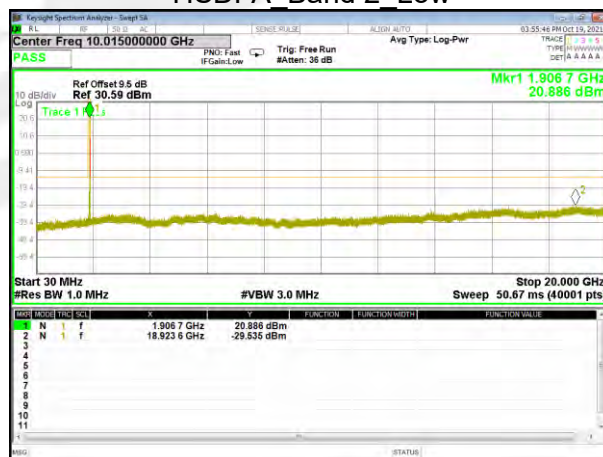
WCDMA Band 2 High



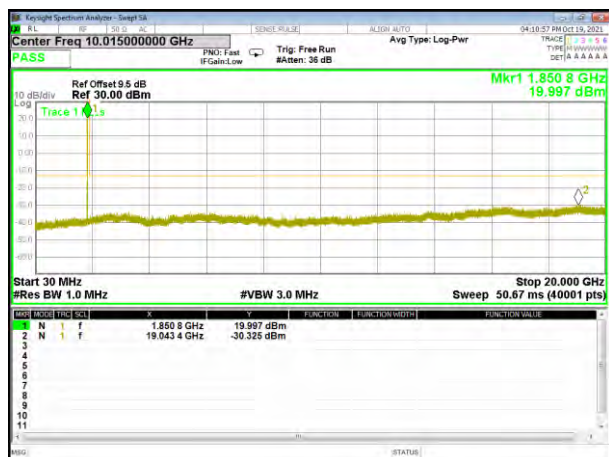
HSDPA Band 2 Low



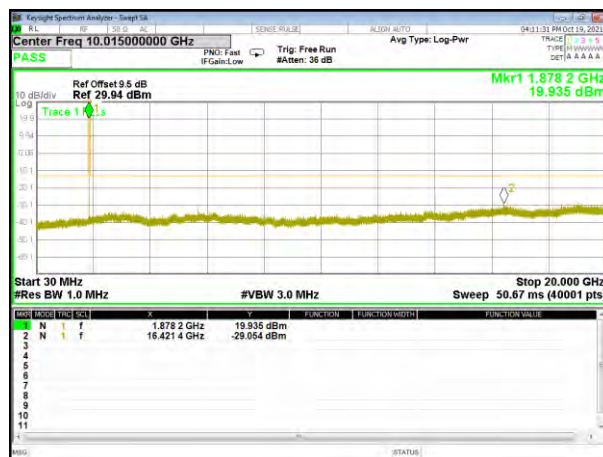
HSDPA_Band 2_Middle



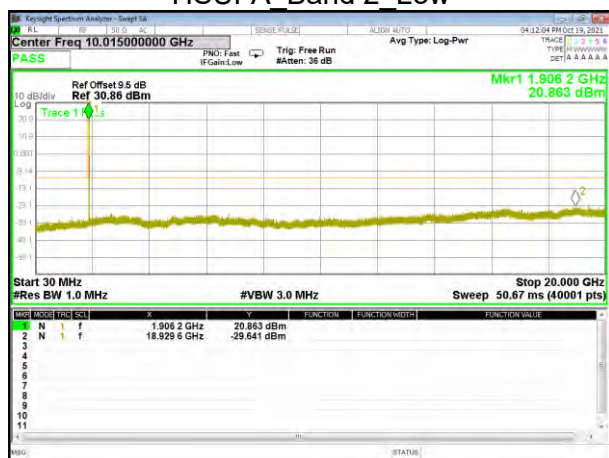
HSDPA_Band 2_High



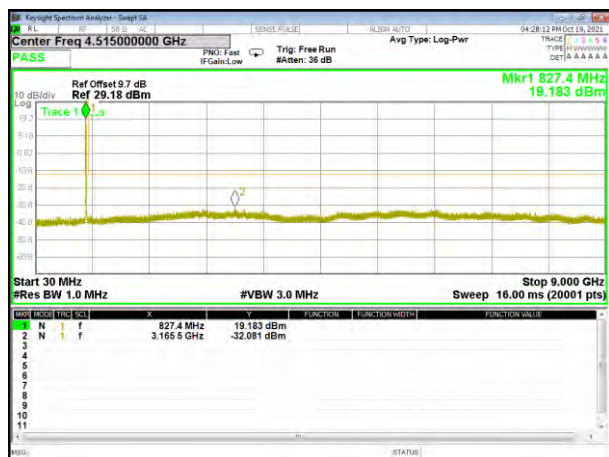
HSUPA_Band 2_Low



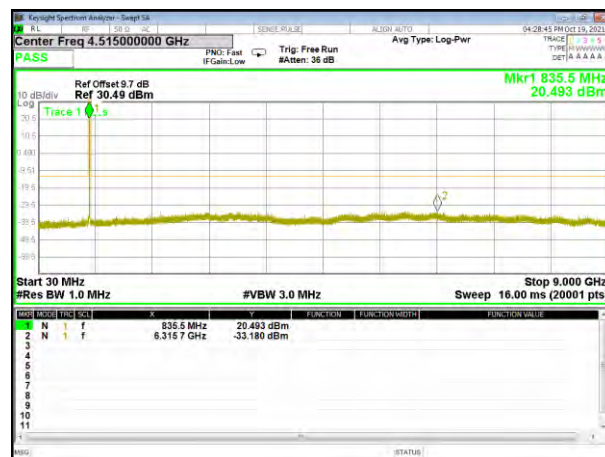
HSUPA_Band 2_Middle



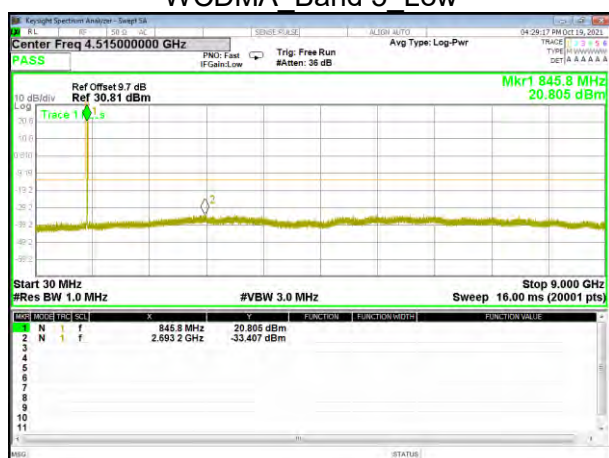
HSUPA_Band 2_High



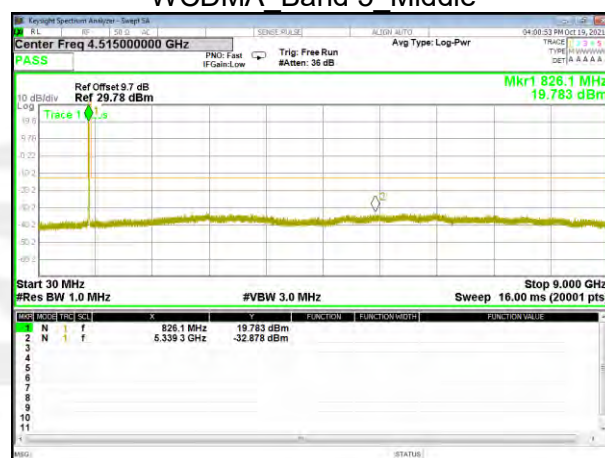
WCDMA Band 5 Low



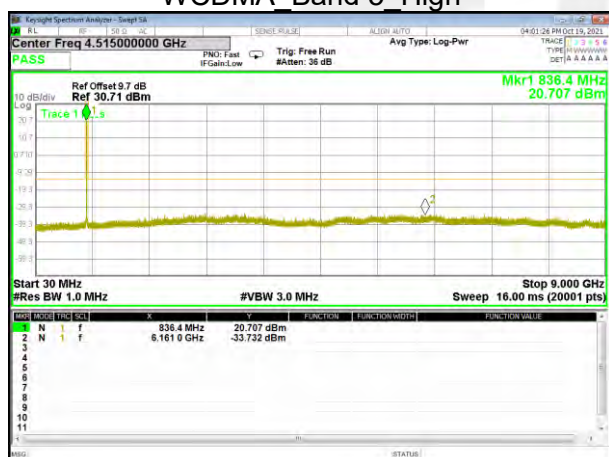
WCDMA Band 5 Middle



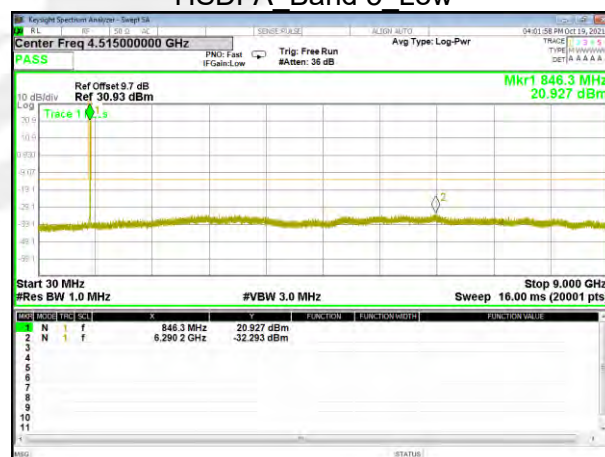
WCDMA Band 5 High



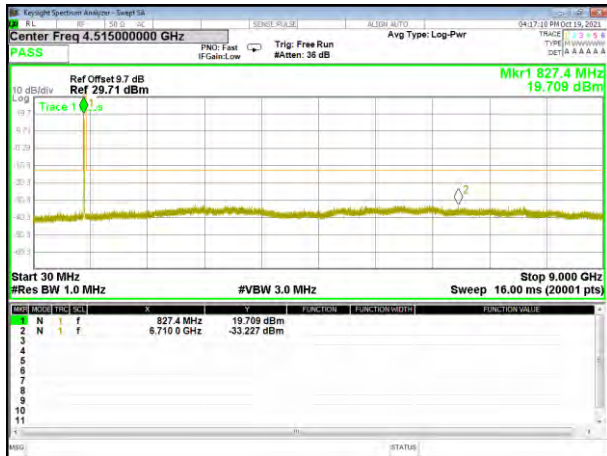
HSDPA Band 5 Low



HSDPA_Band 5_Middle



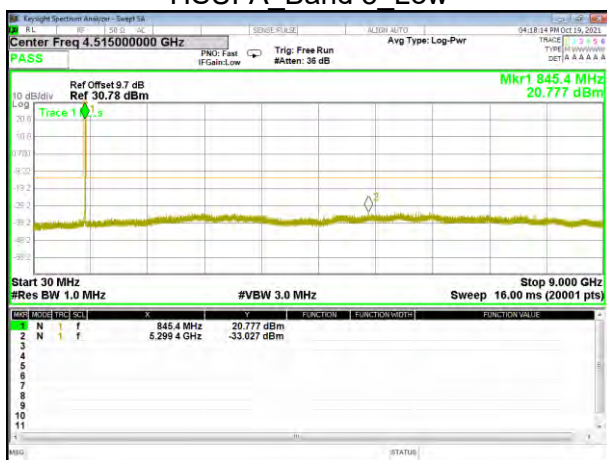
HSDPA_Band 5_High



HSUPA_Band 5_Low



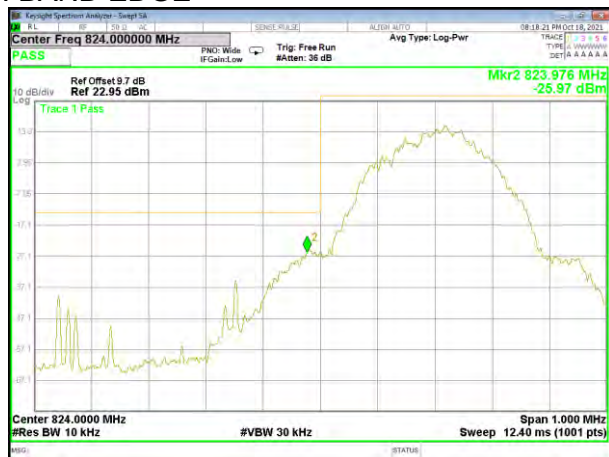
HSUPA_Band 5_Middle



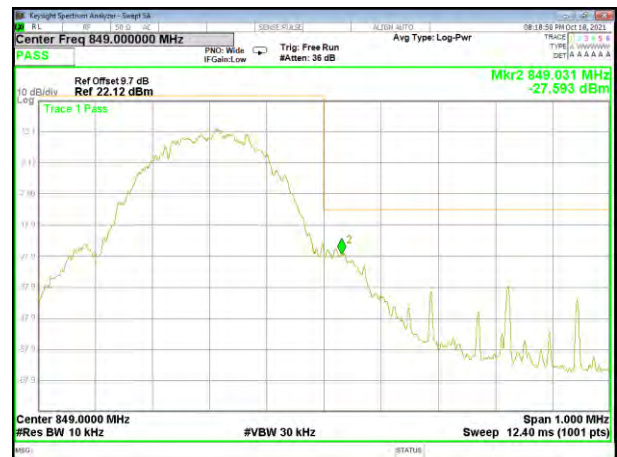
HSUPA_Band 5_High



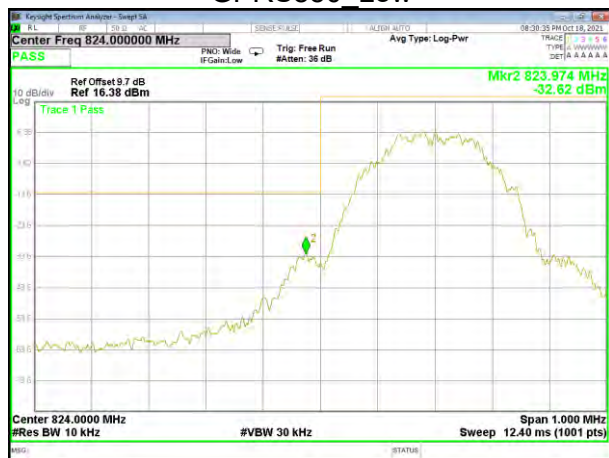
A7. BAND EDGE



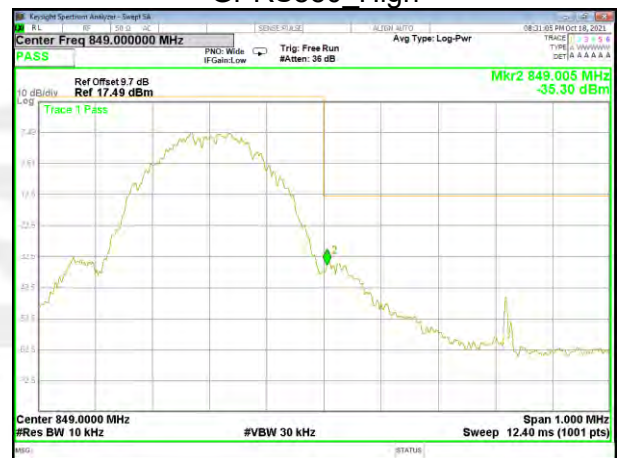
GPRS850_Low



GPRS850_High



EGPRS850_Low



EGPRS850_High



GPRS1900_Low



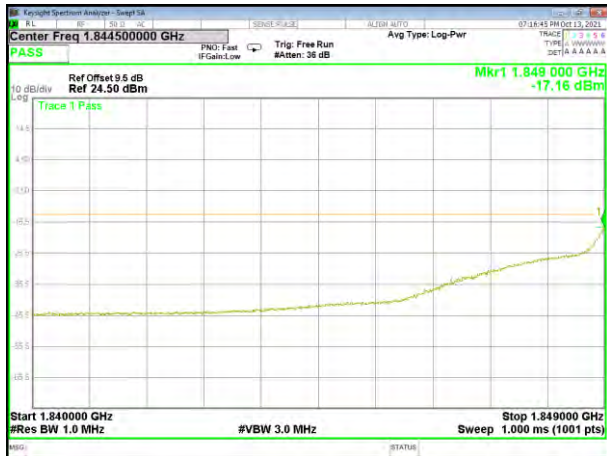
GPRS1900_High



EGPRS1900_Low



EGPRS1900_High



WCDMA_Band 2_Low



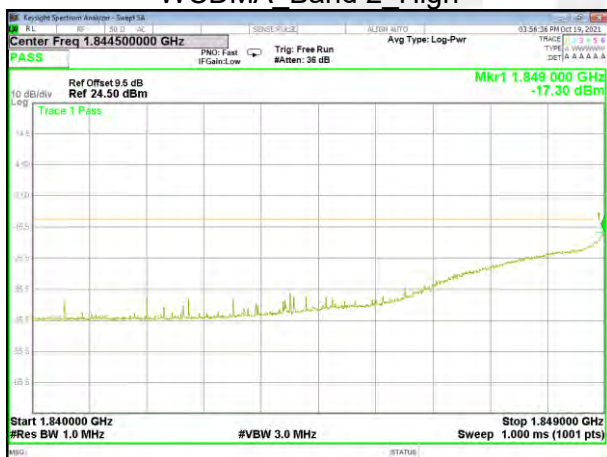
WCDMA_Band 2_Low



WCDMA_Band 2_High



WCDMA_Band 2_High



HSDPA_Band 2_Low



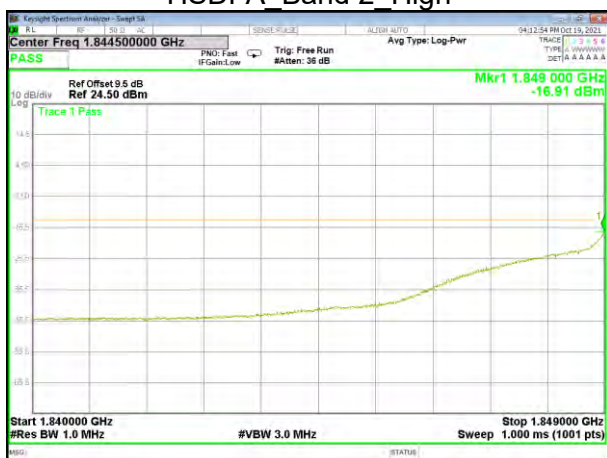
HSDPA_Band 2_Low



HSDPA Band 2 High



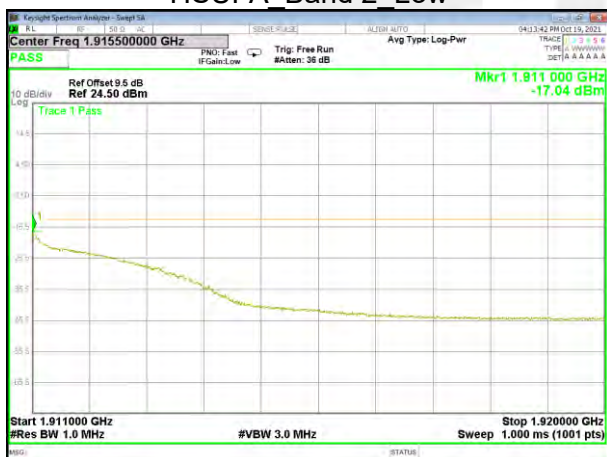
HSDPA Band 2 High



HSDPA Band 2 Low



HSDPA Band 2 Low



HSUPA_Band 2_High



HSUPA_Band 2_High



WCDMA Band 5 Low



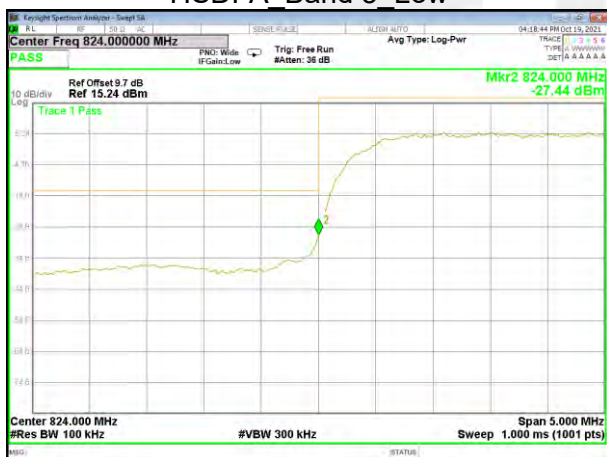
WCDMA Band 5 High



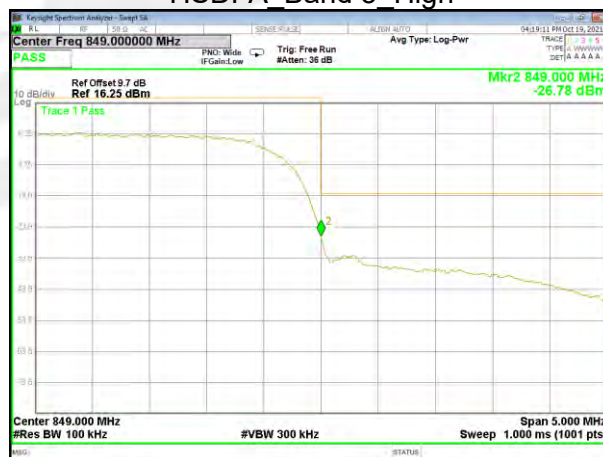
HSDPA Band 5 Low



HSDPA Band 5 High



HSUPA_Band 5_Low



HSUPA_Band 5_High



A8. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

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.

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
1648.46	-40.45	9.40	4.75	-35.80	-13.00	-22.80	H
2472.46	-39.91	10.60	8.39	-37.70	-13.00	-24.70	H
3296.89	-30.93	12.00	11.79	-30.72	-13.00	-17.72	H
1648.46	-44.37	9.40	4.75	-39.72	-13.00	-26.72	V
2472.46	-44.12	10.60	8.39	-41.91	-13.00	-28.91	V
3296.89	-43.43	12.00	11.79	-43.22	-13.00	-30.22	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
1672.88	-40.47	9.50	4.76	-35.73	-13.00	-22.73	H
2509.62	-40.00	10.70	8.40	-37.70	-13.00	-24.70	H
3346.08	-31.64	12.20	11.80	-31.24	-13.00	-18.24	H
1672.88	-43.16	9.40	4.75	-38.51	-13.00	-25.51	V
2509.62	-44.17	10.60	8.39	-41.96	-13.00	-28.96	V
3346.08	-43.90	12.20	11.82	-43.52	-13.00	-30.52	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
1697.45	-40.86	9.60	4.77	-36.03	-13.00	-23.03	H
2546.39	-40.17	10.80	8.50	-37.87	-13.00	-24.87	H
3395.11	-32.05	12.50	11.90	-31.45	-13.00	-18.45	H
1697.45	-44.33	9.60	4.77	-39.50	-13.00	-26.50	V
2546.39	-44.44	10.80	8.50	-42.14	-13.00	-29.14	V
3395.11	-43.27	12.50	11.90	-42.67	-13.00	-29.67	V



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
1648.20	-40.92	9.40	4.75	-36.27	-13.00	-23.27	H
2472.53	-39.59	10.60	8.39	-37.38	-13.00	-24.38	H
3296.89	-31.51	12.00	11.79	-31.30	-13.00	-18.30	H
1648.20	-43.82	9.40	4.75	-39.17	-13.00	-26.17	V
2472.53	-44.60	10.60	8.39	-42.39	-13.00	-29.39	V
3296.89	-43.47	12.00	11.79	-43.26	-13.00	-30.26	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
1672.96	-40.61	9.50	4.76	-35.87	-13.00	-22.87	H
2509.55	-40.64	10.70	8.40	-38.34	-13.00	-25.34	H
3346.33	-31.82	12.20	11.80	-31.42	-13.00	-18.42	H
1672.96	-44.63	9.40	4.75	-39.98	-13.00	-26.98	V
2509.55	-44.84	10.60	8.39	-42.63	-13.00	-29.63	V
3346.33	-43.61	12.20	11.82	-43.23	-13.00	-30.23	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
1697.35	-41.15	9.60	4.77	-36.32	-13.00	-23.32	H
2546.28	-39.19	10.80	8.50	-36.89	-13.00	-23.89	H
3395.08	-31.98	12.50	11.90	-31.38	-13.00	-18.38	H
1697.35	-43.88	9.60	4.77	-39.05	-13.00	-26.05	V
2546.28	-44.87	10.80	8.50	-42.57	-13.00	-29.57	V
3395.08	-43.20	12.50	11.90	-42.60	-13.00	-29.60	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
3700.13	-34.33	12.60	12.93	-34.66	-13.00	-21.66	H
5550.39	-34.70	13.10	17.11	-38.71	-13.00	-25.71	H
7400.59	-33.63	11.50	22.20	-44.33	-13.00	-31.33	H
3700.13	-35.01	12.60	12.93	-35.34	-13.00	-22.34	V
5550.39	-33.89	13.10	17.11	-37.90	-13.00	-24.90	V
7400.59	-33.00	11.50	22.20	-43.70	-13.00	-30.70	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
3760.23	-34.21	12.60	12.93	-34.54	-13.00	-21.54	H
5640.15	-34.81	13.10	17.11	-38.82	-13.00	-25.82	H
7520.27	-32.30	11.50	22.20	-43.00	-13.00	-30.00	H
3760.23	-35.87	12.60	12.93	-36.20	-13.00	-23.20	V
5640.15	-34.40	13.10	17.11	-38.41	-13.00	-25.41	V
7520.27	-32.94	11.50	22.20	-43.64	-13.00	-30.64	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
3819.62	-33.76	12.60	12.93	-34.09	-13.00	-21.09	H
5729.31	-34.94	13.10	17.11	-38.95	-13.00	-25.95	H
7639.26	-32.96	11.50	22.20	-43.66	-13.00	-30.66	H
3819.62	-35.65	12.60	12.93	-35.98	-13.00	-22.98	V
5729.31	-34.59	13.10	17.11	-38.60	-13.00	-25.60	V
7639.26	-32.44	11.50	22.20	-43.14	-13.00	-30.14	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
3700.21	-33.86	12.60	12.93	-34.19	-13.00	-21.19	H
5550.59	-34.27	13.10	17.11	-38.28	-13.00	-25.28	H
7400.85	-32.78	11.50	22.20	-43.48	-13.00	-30.48	H
3700.21	-35.78	12.60	12.93	-36.11	-13.00	-23.11	V
5550.59	-34.32	13.10	17.11	-38.33	-13.00	-25.33	V
7400.85	-32.68	11.50	22.20	-43.38	-13.00	-30.38	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
3760.22	-34.18	12.60	12.93	-34.51	-13.00	-21.51	H
5639.87	-34.98	13.10	17.11	-38.99	-13.00	-25.99	H
7520.27	-32.48	11.50	22.20	-43.18	-13.00	-30.18	H
3760.22	-35.84	12.60	12.93	-36.17	-13.00	-23.17	V
5639.87	-34.92	13.10	17.11	-38.93	-13.00	-25.93	V
7520.27	-32.60	11.50	22.20	-43.30	-13.00	-30.30	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
3819.33	-34.11	12.60	12.93	-34.44	-13.00	-21.44	H
5729.47	-35.13	13.10	17.11	-39.14	-13.00	-26.14	H
7639.03	-33.45	11.50	22.20	-44.15	-13.00	-31.15	H
3819.33	-35.59	12.60	12.93	-35.92	-13.00	-22.92	V
5729.47	-34.64	13.10	17.11	-38.65	-13.00	-25.65	V
7639.03	-32.65	11.50	22.20	-43.35	-13.00	-30.35	V



WCDMA Band 5: (30-9000)MHz							
The worst testresults channel 4132/826.4MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1652.59	-40.92	9.40	4.75	-36.27	-13.00	-23.27	H
2479.06	-40.11	10.60	8.39	-37.90	-13.00	-24.90	H
3305.52	-31.61	12.00	11.79	-31.40	-13.00	-18.40	H
1652.59	-44.35	9.40	4.75	-39.70	-13.00	-26.70	V
2479.06	-44.49	10.60	8.39	-42.28	-13.00	-29.28	V
3305.52	-43.20	12.00	11.79	-42.99	-13.00	-29.99	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
1673.04	-41.53	9.40	4.75	-36.88	-13.00	-23.88	H
2509.07	-39.73	10.60	8.39	-37.52	-13.00	-24.52	H
3345.63	-31.99	12.00	11.79	-31.78	-13.00	-18.78	H
1673.04	-44.36	9.40	4.75	-39.71	-13.00	-26.71	V
2509.07	-45.07	10.60	8.39	-42.86	-13.00	-29.86	V
3345.63	-43.33	12.00	11.79	-43.12	-13.00	-30.12	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
1693.57	-41.25	9.40	4.75	-36.60	-13.00	-23.60	H
2539.57	-39.77	10.60	8.39	-37.56	-13.00	-24.56	H
3386.24	-31.65	12.00	11.79	-31.44	-13.00	-18.44	H
1693.57	-44.06	9.40	4.75	-39.41	-13.00	-26.41	V
2539.57	-45.00	10.60	8.39	-42.79	-13.00	-29.79	V
3386.24	-42.90	12.00	11.79	-42.69	-13.00	-29.69	V



HSUPA Band 5: (30-9000)MHz							
The worst testresults channel 4132/826.4MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1652.71	-41.58	9.40	4.75	-36.93	-13.00	-23.93	H
2479.27	-40.50	10.60	8.39	-38.29	-13.00	-25.29	H
3305.61	-31.21	12.00	11.79	-31.00	-13.00	-18.00	H
1652.71	-44.34	9.40	4.75	-39.69	-13.00	-26.69	V
2479.27	-44.13	10.60	8.39	-41.92	-13.00	-28.92	V
3305.61	-43.52	12.00	11.79	-43.31	-13.00	-30.31	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
1672.68	-41.54	9.40	4.75	-36.89	-13.00	-23.89	H
2509.33	-40.55	10.60	8.39	-38.34	-13.00	-25.34	H
3345.59	-31.30	12.00	11.79	-31.09	-13.00	-18.09	H
1672.68	-43.60	9.40	4.75	-38.95	-13.00	-25.95	V
2509.33	-45.21	10.60	8.39	-43.00	-13.00	-30.00	V
3345.59	-42.52	12.00	11.79	-42.31	-13.00	-29.31	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
1693.40	-40.56	9.40	4.75	-35.91	-13.00	-22.91	H
2539.68	-40.26	10.60	8.39	-38.05	-13.00	-25.05	H
3386.54	-31.73	12.00	11.79	-31.52	-13.00	-18.52	H
1693.40	-43.89	9.40	4.75	-39.24	-13.00	-26.24	V
2539.68	-44.78	10.60	8.39	-42.57	-13.00	-29.57	V
3386.54	-43.47	12.00	11.79	-43.26	-13.00	-30.26	V



HSDPA Band 5: (30-9000)MHz							
The worst testresults channel 4132/826.4MHz							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1652.60	-41.35	9.40	4.75	-36.70	-13.00	-23.70	H
2479.10	-39.78	10.60	8.39	-37.57	-13.00	-24.57	H
3305.93	-32.19	12.00	11.79	-31.98	-13.00	-18.98	H
1652.60	-44.21	9.40	4.75	-39.56	-13.00	-26.56	V
2479.10	-45.10	10.60	8.39	-42.89	-13.00	-29.89	V
3305.93	-43.19	12.00	11.79	-42.98	-13.00	-29.98	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
1672.71	-41.08	9.40	4.75	-36.43	-13.00	-23.43	H
2509.16	-39.31	10.60	8.39	-37.10	-13.00	-24.10	H
3345.76	-30.88	12.00	11.79	-30.67	-13.00	-17.67	H
1672.71	-43.27	9.40	4.75	-38.62	-13.00	-25.62	V
2509.16	-44.43	10.60	8.39	-42.22	-13.00	-29.22	V
3345.76	-43.26	12.00	11.79	-43.05	-13.00	-30.05	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
1693.57	-40.30	9.40	4.75	-35.65	-13.00	-22.65	H
2539.90	-40.58	10.60	8.39	-38.37	-13.00	-25.37	H
3386.46	-31.24	12.00	11.79	-31.03	-13.00	-18.03	H
1693.57	-43.77	9.40	4.75	-39.12	-13.00	-26.12	V
2539.90	-45.44	10.60	8.39	-43.23	-13.00	-30.23	V
3386.46	-42.68	12.00	11.79	-42.47	-13.00	-29.47	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
3704.14	-34.87	12.60	12.93	-35.20	-13.00	-22.20	H
5557.55	-34.80	13.10	17.11	-38.81	-13.00	-25.81	H
7409.69	-32.30	11.50	22.20	-43.00	-13.00	-30.00	H
3704.14	-35.17	12.60	12.93	-35.50	-13.00	-22.50	V
5557.55	-35.21	13.10	17.11	-39.22	-13.00	-26.22	V
7409.69	-32.67	11.50	22.20	-43.37	-13.00	-30.37	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
3759.84	-34.24	12.60	12.93	-34.57	-13.00	-21.57	H
5639.86	-35.36	13.10	17.11	-39.37	-13.00	-26.37	H
7520.11	-32.76	11.50	22.20	-43.46	-13.00	-30.46	H
3759.84	-35.90	12.60	12.93	-36.23	-13.00	-23.23	V
5639.86	-34.69	13.10	17.11	-38.70	-13.00	-25.70	V
7520.11	-32.40	11.50	22.20	-43.10	-13.00	-30.10	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
3815.39	-34.68	12.60	12.93	-35.01	-13.00	-22.01	H
5722.71	-34.96	13.10	17.11	-38.97	-13.00	-25.97	H
7630.29	-32.21	11.50	22.20	-42.91	-13.00	-29.91	H
3815.39	-34.63	12.60	12.93	-34.96	-13.00	-21.96	V
5722.71	-33.91	13.10	17.11	-37.92	-13.00	-24.92	V
7630.29	-31.73	11.50	22.20	-42.43	-13.00	-29.43	V



HSUPA 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
3704.12	-33.88	12.60	12.93	-34.21	-13.00	-21.21	H
5557.59	-34.06	13.10	17.11	-38.07	-13.00	-25.07	H
7409.63	-32.18	11.50	22.20	-42.88	-13.00	-29.88	H
3704.12	-35.77	12.60	12.93	-36.10	-13.00	-23.10	V
5557.59	-34.92	13.10	17.11	-38.93	-13.00	-25.93	V
7409.63	-33.16	11.50	22.20	-43.86	-13.00	-30.86	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
3759.94	-33.90	12.60	12.93	-34.23	-13.00	-21.23	H
5640.02	-35.35	13.10	17.11	-39.36	-13.00	-26.36	H
7519.84	-32.94	11.50	22.20	-43.64	-13.00	-30.64	H
3759.94	-35.93	12.60	12.93	-36.26	-13.00	-23.26	V
5640.02	-34.19	13.10	17.11	-38.20	-13.00	-25.20	V
7519.84	-33.10	11.50	22.20	-43.80	-13.00	-30.80	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
3815.28	-34.52	12.60	12.93	-34.85	-13.00	-21.85	H
5722.50	-35.16	13.10	17.11	-39.17	-13.00	-26.17	H
7630.46	-32.15	11.50	22.20	-42.85	-13.00	-29.85	H
3815.28	-35.46	12.60	12.93	-35.79	-13.00	-22.79	V
5722.50	-34.65	13.10	17.11	-38.66	-13.00	-25.66	V
7630.46	-33.03	11.50	22.20	-43.73	-13.00	-30.73	V



HSDPA 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
3704.30	-33.74	12.60	12.93	-34.07	-13.00	-21.07	H
5557.42	-34.38	13.10	17.11	-38.39	-13.00	-25.39	H
7409.88	-33.16	11.50	22.20	-43.86	-13.00	-30.86	H
3704.30	-34.83	12.60	12.93	-35.16	-13.00	-22.16	V
5557.42	-34.37	13.10	17.11	-38.38	-13.00	-25.38	V
7409.88	-32.54	11.50	22.20	-43.24	-13.00	-30.24	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
3760.01	-34.73	12.60	12.93	-35.06	-13.00	-22.06	H
5640.25	-35.27	13.10	17.11	-39.28	-13.00	-26.28	H
7519.89	-33.48	11.50	22.20	-44.18	-13.00	-31.18	H
3760.01	-34.93	12.60	12.93	-35.26	-13.00	-22.26	V
5640.25	-34.05	13.10	17.11	-38.06	-13.00	-25.06	V
7519.89	-32.83	11.50	22.20	-43.53	-13.00	-30.53	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
3815.25	-33.73	12.60	12.93	-34.06	-13.00	-21.06	H
5722.63	-34.00	13.10	17.11	-38.01	-13.00	-25.01	H
7630.22	-32.86	11.50	22.20	-43.56	-13.00	-30.56	H
3815.25	-35.05	12.60	12.93	-35.38	-13.00	-22.38	V
5722.63	-35.05	13.10	17.11	-39.06	-13.00	-26.06	V
7630.22	-33.10	11.50	22.20	-43.80	-13.00	-30.80	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※※※※※

