Test Report

FCC ID:2AWHZ-N240600

Date of issue: July 02, 2020

Report number:	MTi20050902-3E1
Sample description:	Lithium-ion Batteries
Model(s):	N240600, N240130
Applicant:	GUANGDONG ICE CO., LTD
Address:	XIANGSHIROAD LIAOBU DONGGUANG
Date of test:	May 19, 2020 to July 02, 2020

Shenzhen Microtest Co., Ltd.
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Test Result Certification

Applicant's name:	GUANGDONG ICE CO., LTD
Address:	XIANGSHIROAD LIAOBU DONGGUANG
Manufacture's name:	GUANGDONG ICE CO., LTD
Address:	XIANGSHIROAD LIAOBU DONGGUANG
Product name:	Lithium-ion Batteries
Trademark:	I-synergy
Model name:	N240600, N240130
Standards:	FCC Part 22 Subpart H FCC Part 24 Subpart E
Test procedure:	FCC Part 2 ANSI/TIA-603-E-2016 ANSI C63.26:2015 KDB 971168 D01 Power Meas License Digital Systems v03r01

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by: Demi Mu — July 02, 2020

Reviewed by: Leo Su — July 02, 2020

Approved by: Tom Xue — July 02, 2020

1 General description

1.1 Feature of equipment under test (EUT)

Product name:	Lithium-ion Batteries
Trade name	I-synergy
Model name:	N240600, N240130
Difference in series models:	All the models are of the same circuit and RF module, except the battery capacity.
Frequency range:	GSM850: TX824.2MHz~848.8MHz /RX869.2MHz~893.8MHz; PCS1900: TX1850.2MHz~1909.8MHz /RX1930.2MHz~1989.8MHz; WCDMA Band II: TX1852.4MHz~1907.6MHz RX1932.4MHz~1987.6MHz; WCDMA Band V: TX826.4MHz~846.6MHz RX871.4MHz~891.6MHz;
Modulation type:	GMSK for GSM/GPRS; 8PSK for EGPRS; QPSK for WCDMA bands;
Power class:	Multi-Class12 Only 4 timeslots are used for GPRS
SIM card:	The Lithium-ion Batteries has One SIM Card socket
Antenna Type	PCB Antenna
Antenna gain:	GSM 850 Gain: 2dBi GSM 1900 Gain: 2dBi WCDMA Band II: 2dBi WCDMA Band V: 2dBi
Hardware version	V1.0
Software version	V1.0
Power supply:	DC 5V from USB Port
Battery:	N/A
Adapter information:	N/A
EUT serial number:	MTi20050902-3-S0001

1.2 Test frequency channel

Frequency Band	Frequency	Channel	Frequency(MHz)
GSM 850	Low	128	824.2
	Middle	190	836.6
	High	251	848.8
GSM 1900	Low	512	1850.2
	Middle	661	1880
	High	810	1909.8

WCDMA Band II	Low	9262	1852.4
	Middle	9400	1880
	High	9538	1907.6
WCDMA Band V	Low	4132	826.4
	Middle	4183	836.6
	High	4233	846.6

1.3 EUT operation mode

During testing, RF test program provided by the manufacture to control the Tx operation followed the test requirement. The EUT is configured to transmit continuously (duty cycle > 98 %) at the maximum power control level.

1.4 Ancillary equipment list

Equipment	Model	S/N	Manufacturer	Certificate type
/	/	/	/	/

1.5 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y)

RF frequency	1 x 10-7
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %

2 Summary of Test Result

Item	FCC Part No.	Description of Test	Result
1	2.1046, 22.913(a); 24.232(c)	Maximum output power	Pass
2	2.1046, 22.913(d); 24.232(d)	Peak to average power radio(PAPR)	Pass
3	2.1046, 22.913(a); 24.232(c)	Transmitter Radiated Power (EIRP/ERP)	Pass
4	2.1049; 22.917(b); 24.238(b)	Occupied Bandwidth	Pass
5	2.1051; 22.917(a); 24.238(a)	Conducted spurious emissions	Pass
6	2.1051; 22.917(b); 24.238(b)	Spurious emissions at band edge	Pass
7	2.1053; 22.917(a); 24.238(a)	Radiated spurious emissions	Pass
8	2.1055; 22.355; 24.235	Frequency Stability	Pass

3 Test facilities and accreditations

3.1 Test laboratory

Test Laboratory	Shenzhen Microtest Co., Ltd
Location	No.102A & 302A, East Block, Hengfang Industrial Park, Xingye Road, Xixiang, Bao'an District, Shenzhen, Guangdong, China
FCC Registration No.:	FCC Registration No.: 448573

3.2 Environmental conditions

Temperature:	15ºC~35ºC
Humidity	20%~75%
Atmospheric pressure	98kPa~101kPa

3.3 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y)

RF frequency	1 x 10-7
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %

3.4 Test software

Software Name	Manufacturer	Model	Version
GSM	Shenzhen JS tonscend co., ltd	JS1120-4	2.1.6
WCDMA	Shenzhen JS tonscend co., ltd	JS1120-2	2.1.5.10

4 List of test equipment

Equipment No.	Equipment Name	Manufacturer	Model	Serial No.	Calibration date	Due date
MTI-E004	EMI Test Receiver	Rohde&schwarz	ESPI7	100314	2019/10/09	2020/10/08
MTI-E006	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-872	2019/10/15	2020/10/14
MTI-E014	amplifier	Hewlett-Packard	8447D	3113A06150	2019/10/09	2020/10/08
MTI-E036	Single path vehicle AMN(LISN)	Schwarzbeck	NNBM 8124	01175	2019/10/09	2020/10/08
MTI-E038	Low noise active vertical monopole antenna	Schwarzbeck	VAMP 9243	#565	2019/10/16	2020/10/15
MTI-E039	Biconical antenna	Schwarzbeck	BBA 9106	#164	2019/10/15	2020/10/14
MTI-E041	MXG Vector Signal Generator	Agilent	N5182A	MY49060455	2020/04/16	2021/04/15
MTI-E042	ESG Series Analog signal generator	Agilent	E4421B	GB40051240	2020/05/21	2021/05/20
MTI-E044	Thermometer clock humidity monitor	-	HTC-1	/	2020/04/17	2021/04/16
MTI-E062	Log Periodic Antenna	Schwarzbeck	VUSLP 9111B	#312	2020/04/11	2022/04/10
MTI-E063	Log Periodic Dipole Array Antenna	ETS-LINDGREN	3148B	00224524	2020/04/11	2022/04/10
MTI-E065	Amplifier	EMtrace	RP06A	00117	2020/04/29	2021/04/28
MTI-E066	Comprehensive test instrument	Rohde&schwarz	CMW500	149155	2020/04/16	2021/04/15
MTI-E071	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2019/10/25	2020/10/24
MTI-E076	EMI Test Receiver	Rohde&schwarz	ESIB26	100273	2020/04/16	2021/04/15
MTI-E078	Synthesized Sweeper	Agilent	83752A	3610A01957	2020/04/16	2021/04/15
MTI-E079	DC Power Supply	Agilent	E3632A	MY40027695	2020/04/16	2021/04/15
MTI-E093	Artificial mains network	3ctest	LISN J50	ES3911805	2020/04/16	2021/04/15
MTI-E096	Power amplifier	Space-Dtroniccs	EWLNA0118G-P40	1852001	2020/04/29	2021/04/28
MTI-E097	Current Probe	SOLAR ELECTRONICS CO.	9207-1	220095-1	2020/04/17	2021/04/16
MTI-E098	Loop Sensor	SOLAR ELECTRONICS CO.	7334-1	220095-2	2020/04/21	2021/04/20
MTI-E080	Temperature& Humidity test chamber	Safety test	AG80L	171200018	2020/04/16	2021/04/15
Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).						

5 Test Result

5.1 Maximum output power and EIRP & ERP

5.1.1 Limit

For FCC 22.913: The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC 24.234: Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

5.1.2 Test method

For Conducted output power:

1.Use a universal radio communication tester, the output power of EUT was measured at the antenna terminal. The path loss was calibrated and entered as an offset into the test equipment.

2. The EUT was configured to transmit on maximum power by the radio communication tester.

3. Measured the peak and average powers.

For EIRP & ERP:

1.In many cases, the RF output power limits for licensed digital transmission devices is specified in terms of effective radiated power (ERP) or equivalent isotropic radiated power (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 determined by adding the transmit antenna gain to the conducted RF output power with the primary difference between the two being that when determining the ERP, the transmit antenna gain is referenced to a dipole antenna (i.e., dBd) whereas when determining the EIRP, the transmit antenna gain is referenced to an isotropic antenna (dBi).

2.The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$ERP/EIRP = P_{Meas} + GT - LC$

where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as P_{Meas}, typically dBW or dBm);

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

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

dBd (ERP)=dBi (EIRP) -2.15 dB

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

5.1.3 Test Result

For Conducted output power:

Band	Channel	Slot	Power(dBm)	Limit(dBm)	Verdict
GPRS850	128	1	32.31	38.5	PASS
		2	31.93		
		3	30.57		
		4	29.05		
	190	1	32.40		
		2	32.06		
		3	30.74		
		4	29.24		
	251	1	32.46		
		2	32.15		
		3	30.83		
		4	29.34		
GPRS1900	512	1	29.87	33	PASS
		2	29.51		
		3	28.00		
		4	26.46		
	661	1	29.98		
		2	29.66		
		3	28.40		
		4	26.99		
	810	1	29.75		
		2	29.48		
		3	28.33		
		4	26.98		

Band	Channel	Slot	Power(dBm)	Limit(dBm)	Verdict
EGPRS850	128	1	26.72	38.5	PASS
		2	25.05		
		3	23.77		
		4	22.76		
	190	1	26.94		
		2	24.88		
		3	24.71		
		4	22.97		
	251	1	26.95		
		2	25.16		
		3	23.37		
		4	23.01		
EGPRS1900	512	1	27.09	33	PASS
		2	25.12		
		3	23.20		
		4	23.04		
	661	1	27.41		
		2	25.81		
		3	23.76		
		4	23.61		
	810	1	27.17		
		2	25.26		
		3	24.34		
		4	23.75		

HSDPA:

Band	Channel	SubTest	Power(dBm)	Limit(dBm)	Verdict
Band II	9262	HSDPA_Sub1	23.16	33	PASS
		HSDPA_Sub2	22.49		
		HSDPA_Sub3	22.25		
		HSDPA_Sub4	22.01		
	9400	HSDPA_Sub1	22.93		
		HSDPA_Sub2	22.30		
		HSDPA_Sub3	22.05		
		HSDPA_Sub4	21.86		
	9538	HSDPA_Sub1	22.34		
		HSDPA_Sub2	21.79		
		HSDPA_Sub3	21.54		
		HSDPA_Sub4	21.35		
Band V	4132	HSDPA_Sub1	23.65	38.5	PASS
		HSDPA_Sub2	22.91		
		HSDPA_Sub3	22.66		
		HSDPA_Sub4	22.40		
	4182	HSDPA_Sub1	23.48		
		HSDPA_Sub2	22.72		
		HSDPA_Sub3	22.48		
		HSDPA_Sub4	22.22		
	4233	HSDPA_Sub1	23.49		
		HSDPA_Sub2	22.75		
		HSDPA_Sub3	22.51		
		HSDPA_Sub4	22.25		

HSUPA:

Band	Channel	Sub Test	Power(dBm)	Limit(dBm)	Verdict
Band II	9262	HSUPA_Sub1	21.13	33	PASS
		HSUPA_Sub2	21.52		
		HSUPA_Sub3	21.99		
		HSUPA_Sub4	21.03		
		HSUPA_Sub5	23.02		
	9400	HSUPA_Sub1	21.96		
		HSUPA_Sub2	21.38		
		HSUPA_Sub3	21.81		
		HSUPA_Sub4	20.94		
		HSUPA_Sub5	22.93		
	9538	HSUPA_Sub1	21.51		
		HSUPA_Sub2	20.82		
		HSUPA_Sub3	21.36		
		HSUPA_Sub4	20.47		
		HSUPA_Sub5	22.49		
Band V	4132	HSUPA_Sub1	22.30	38.5	PASS
		HSUPA_Sub2	21.61		
		HSUPA_Sub3	22.11		
		HSUPA_Sub4	21.25		
		HSUPA_Sub5	23.44		
	4182	HSUPA_Sub1	22.05		
		HSUPA_Sub2	21.41		
		HSUPA_Sub3	22.15		
		HSUPA_Sub4	21.02		
		HSUPA_Sub5	23.24		
	4233	HSUPA_Sub1	22.15		
		HSUPA_Sub2	21.42		
		HSUPA_Sub3	21.98		
		HSUPA_Sub4	21.11		
		HSUPA_Sub5	23.25		

For EIRP & ERP:

GPRS 850

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	Correction	ERP	ERP
(MHz)		(dBm)	(dB)	(dB)	(dB)	(dBm)	(W)
824.2	H	31.13	0.39	2	2.15	30.59	1.1466
836.6	H	30.36	0.35	2	2.15	29.86	0.9689
848.8	H	31.83	0.32	2	2.15	31.36	1.3667
824.2	V	32.22	0.39	2	2.15	31.68	1.4707
836.6	V	31.96	0.35	2	2.15	31.46	1.3995
848.8	V	30.72	0.32	2	2.15	30.25	1.0595

EGPRS 850

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	Correction	ERP	ERP
(MHz)		(dBm)	(dB)	(dB)	(dB)	(dBm)	(W)
824.2	H	25.04	0.39	2	2.15	24.50	0.2816
836.6	H	25.01	0.35	2	2.15	24.51	0.2822
848.8	H	25.96	0.32	2	2.15	25.49	0.3539
824.2	V	26.01	0.39	2	2.15	25.47	0.3522
836.6	V	25.72	0.35	2	2.15	25.22	0.3326
848.8	V	26.35	0.32	2	2.15	25.88	0.3876

GPRS 1900

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	EIRP	EIRP
(MHz)		(dBm)	(dB)	(dB)	(dBm)	(W)
1850.2	H	29.91	0.47	2	31.44	1.3947
1880	H	29.83	0.47	2	31.36	1.3690
1909.8	H	29.44	0.46	2	30.98	1.2544
1850.2	V	28.99	0.47	2	30.52	1.1261
1880	V	28.28	0.47	2	27.81	0.6043
1909.8	V	28.28	0.46	2	27.82	0.6048

EGPRS 1900

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	EIRP	EIRP
(MHz)		(dBm)	(dB)	(dB)	(dBm)	(W)
1850.2	H	25.80	0.47	2	27.33	0.5403
1880	H	25.23	0.47	2	26.76	0.4747
1909.8	H	25.54	0.46	2	27.08	0.5101
1850.2	V	25.53	0.47	2	27.06	0.5077
1880	V	27.34	0.47	2	26.87	0.4860
1909.8	V	26.92	0.46	2	26.46	0.4430

WCDMA BAND II (HSDPA)

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	EIRP	EIRP
(MHz)		(dBm)	(dB)	(dB)	(dBm)	(W)
1852.4	H	21.82	0.47	2	23.35	0.2161
1880	H	21.23	0.47	2	22.76	0.1890
1907.6	H	22.02	0.46	2	23.56	0.2268
1852.4	V	21.62	0.47	2	23.15	0.2063
1880	V	22.14	0.47	2	23.67	0.2327
1907.6	V	20.60	0.46	2	22.14	0.1636

WCDMA BAND V (HSDPA)

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	Correction	(ERP)	ERP
(MHz)		(dBm)	(dB)	(dB)	(dBi)	(dBm)	(W)
826.4	H	22.23	0.39	2	2.15	21.69	0.1476
836.6	H	22.35	0.35	2	2.15	21.85	0.1532
846.6	H	23.66	0.32	2	2.15	23.19	0.2083
826.4	V	23.17	0.39	2	2.15	22.63	0.1834
836.6	V	22.89	0.35	2	2.15	22.39	0.1735
846.6	V	23.24	0.32	2	2.15	22.77	0.1891

WCDMA BAND II (HSUPA)

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	EIRP	EIRP
(MHz)		(dBm)	(dB)	(dB)	(dBm)	(W)
1852.4	H	21.43	0.47	2	22.96	0.1975
1880	H	21.15	0.47	2	22.68	0.1853
1907.6	H	21.58	0.46	2	23.12	0.2053
1852.4	V	21.90	0.47	2	23.43	0.2203
1880	V	22.25	0.47	2	23.78	0.2388
1907.6	V	21.05	0.46	2	22.59	0.1817

WCDMA BAND V (HSUPA)

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	Correction	(ERP)	ERP
(MHz)		(dBm)	(dB)	(dB)	(dBi)	(dBm)	(W)
826.4	H	22.52	0.39	2	2.15	21.98	0.1578
836.6	H	22.13	0.35	2	2.15	21.63	0.1456
846.6	H	22.90	0.32	2	2.15	22.43	0.1750
826.4	V	22.77	0.39	2	2.15	22.23	0.1673
836.6	V	23.00	0.35	2	2.15	22.50	0.1776
846.6	V	23.40	0.32	2	2.15	22.93	0.1963

Note:
(1) EIRP=SG Level - Cable Loss + Antenna Gain
(2) ERP= SG Level - Cable Loss + Antenna Gain – Correction

5.2 Peak to average power ratio (PAPR)

5.2.1 Limit

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

5.2.2 Test method

The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
Set the number of counts to a value that stabilizes the measured CCDF curve.
Set the measurement interval to 1 ms.
Record the maximum PAPR level associated with a probability of 0.1%.
a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
c) Set the number of counts to a value that stabilizes the measured CCDF curve;
d) Set the measurement interval as follows:
1) for continuous transmissions, set to 1 ms,
2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
e) Record the maximum PAPR level associated with a probability of 0.1%.

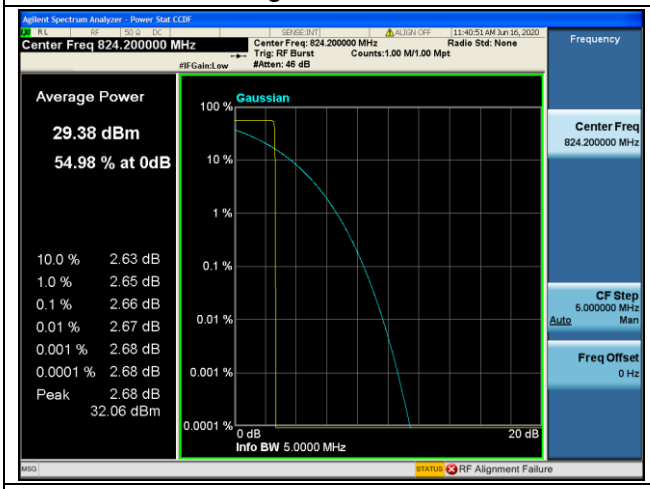
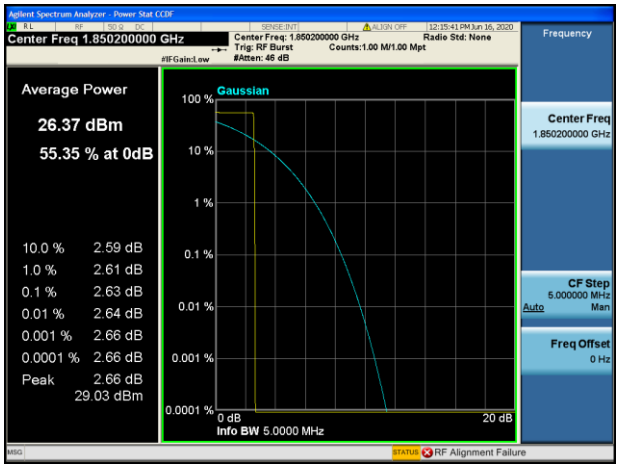
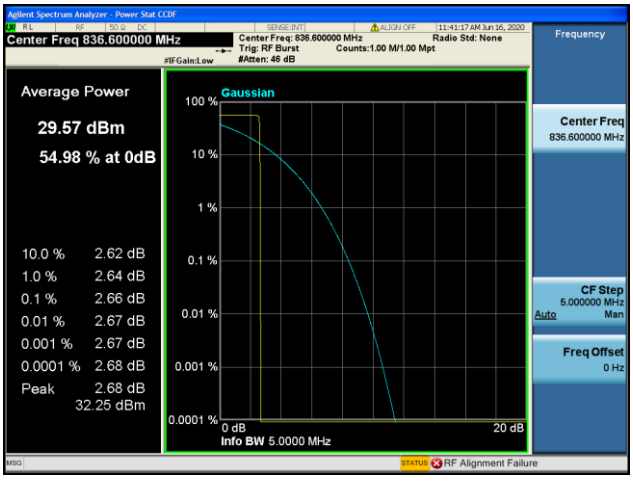
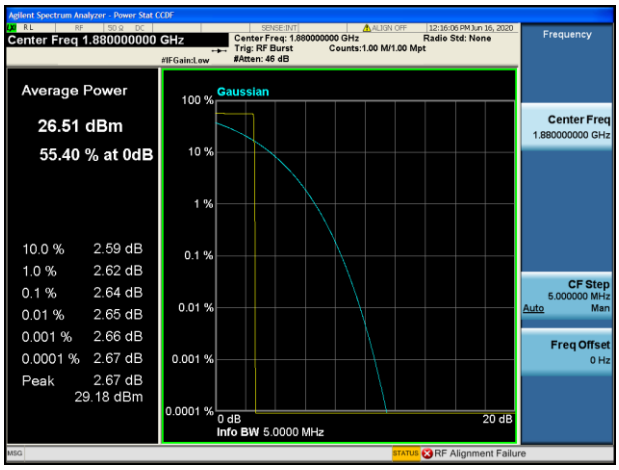
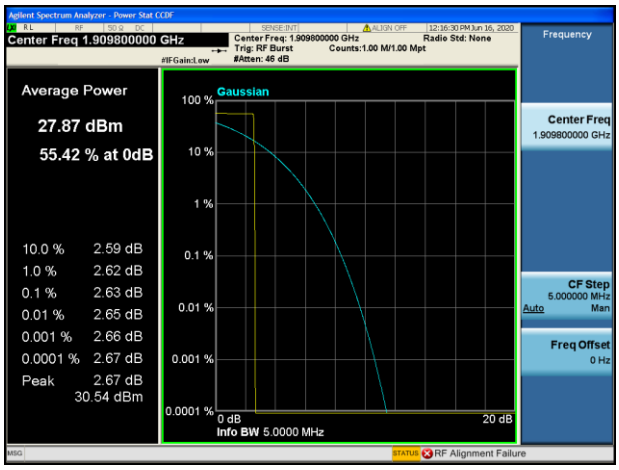
5.2.3 Test Result

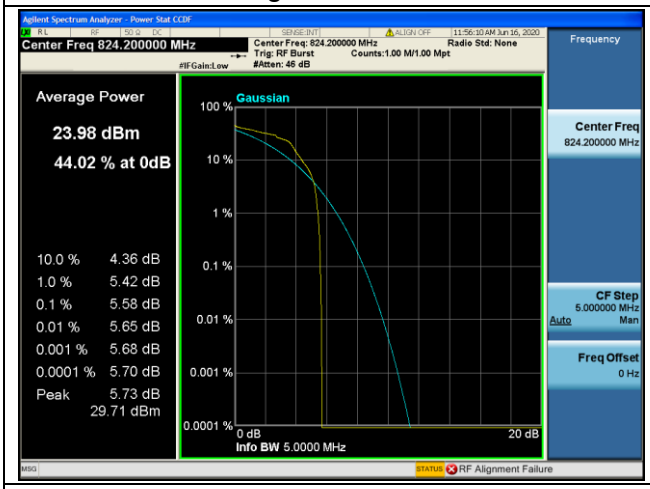
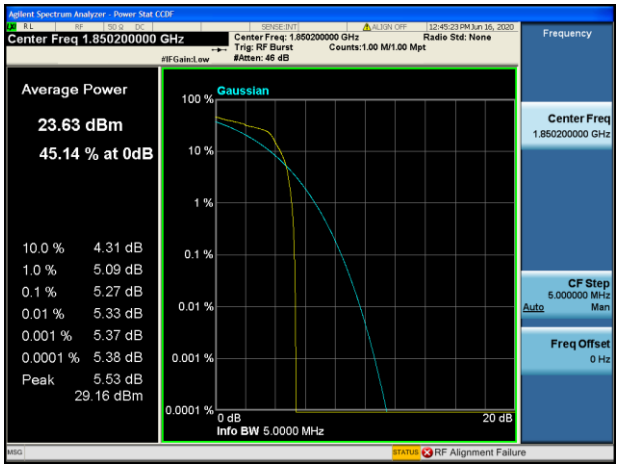
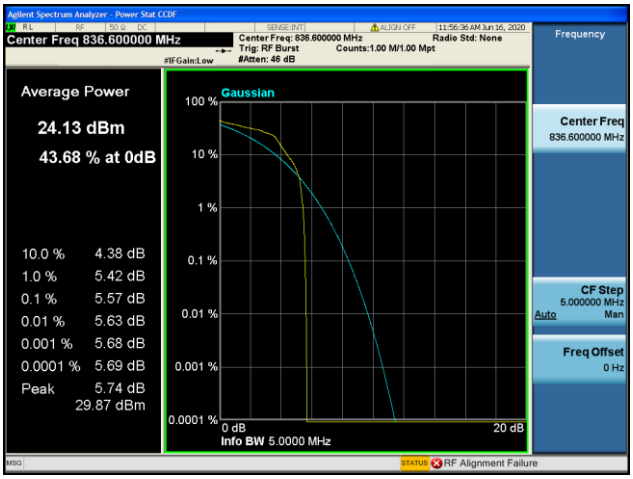
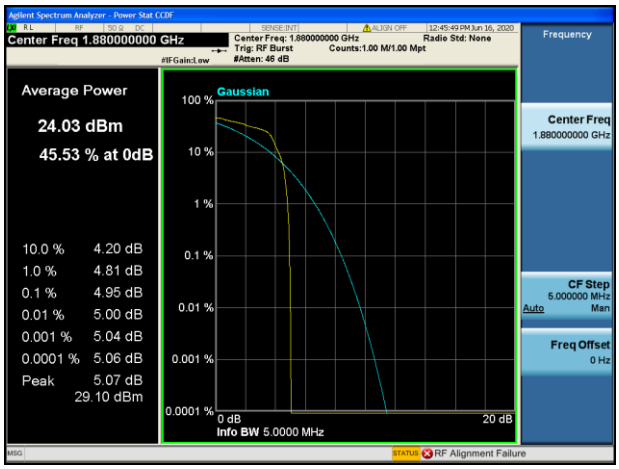
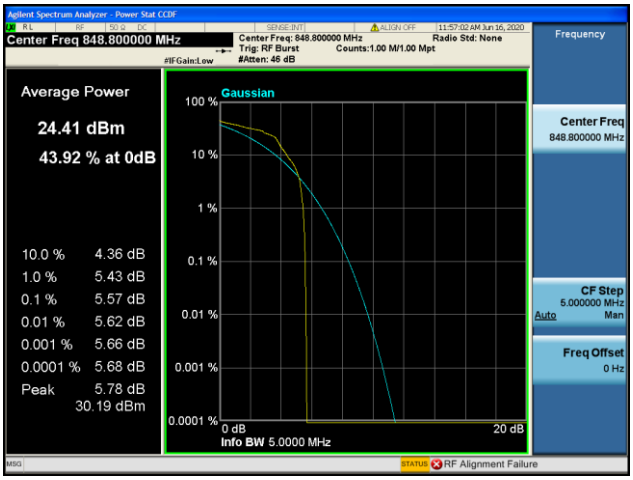
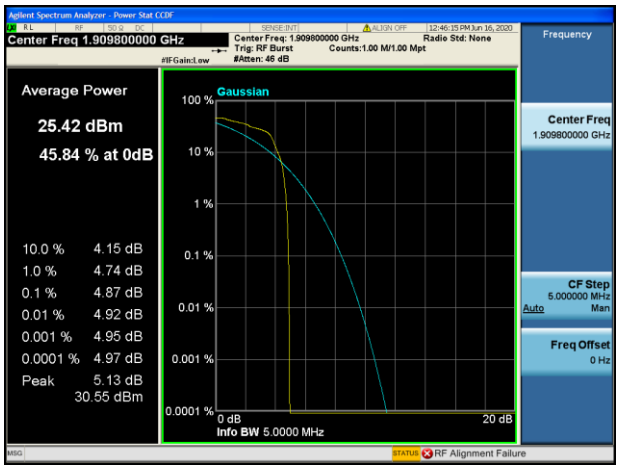
Cellular Band						
Modes	GPRS850			GPRS1900		
Channel	128 (Low)	190 (Mid)	251 (High)	512 (Low)	661 (Mid)	810 (High)
Frequency(MHz)	824.2	836.6	848.8	1850.2	1880	1909.8
Peak-to-Average Ratio(dB)	2.66	2.66	2.66	2.63	2.64	2.63

Cellular Band						
Modes	EGPRS850			EGPRS1900		
Channel	128 (Low)	190 (Mid)	251 (High)	512 (Low)	661 (Mid)	810 (High)
Frequency(MHz)	824.2	836.6	848.8	1850.2	1880	1909.8
Peak-to-Average Ratio(dB)	5.58	5.57	5.57	5.27	4.95	4.87

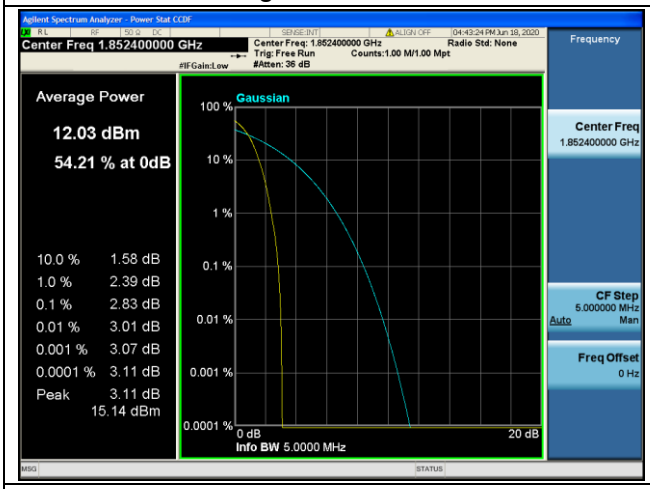
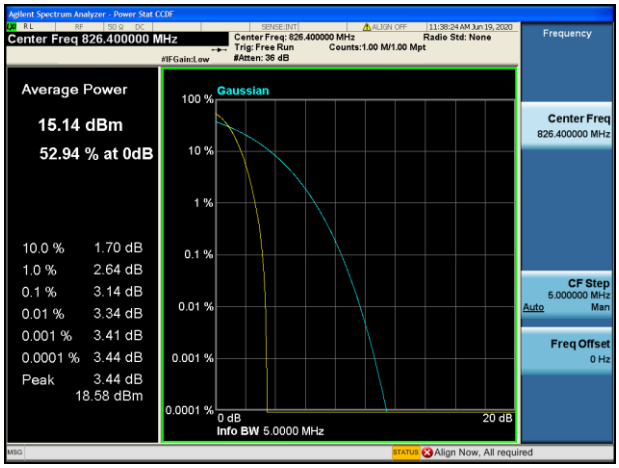
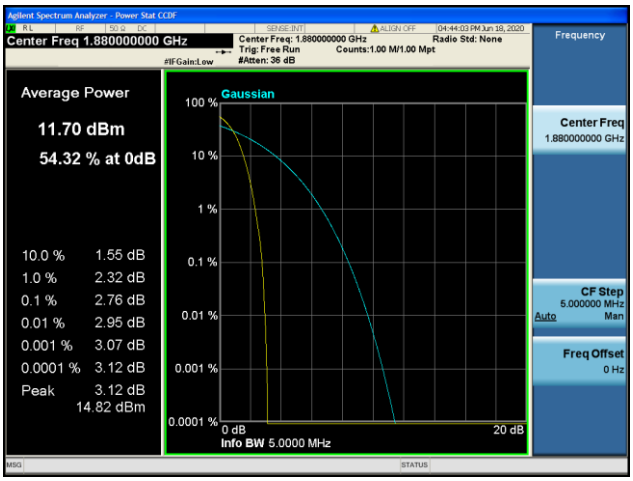
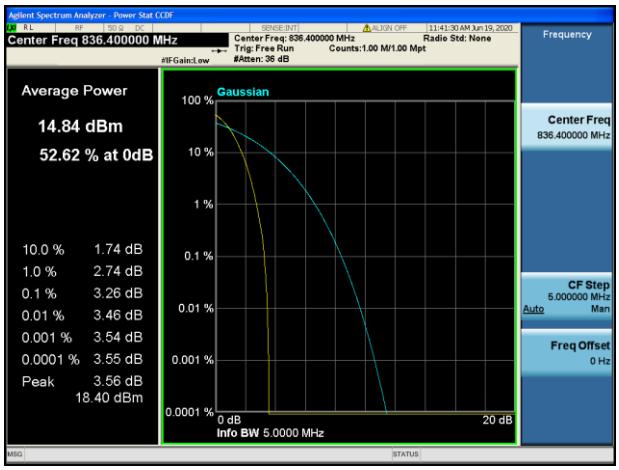
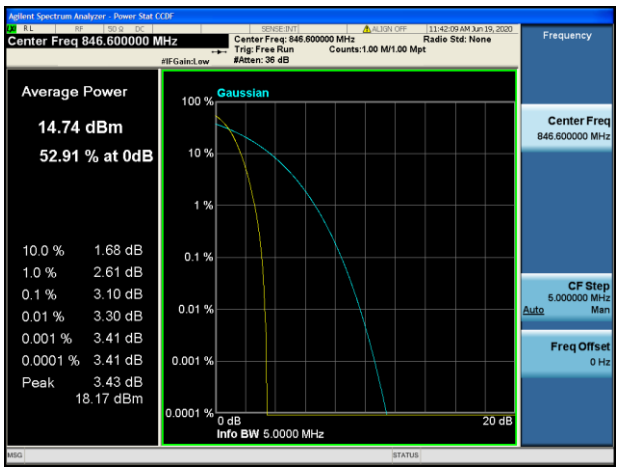
Cellular Band - HSDPA						
Modes	WCDMA BAND II			WCDMA BAND V		
Channel	9262 (Low)	9400 (Mid)	9538 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency(MHz)	1852.4	1880	1907.6	1852.4	1880	1907.6
Peak-to-Average Ratio(dB)	2.83	2.76	2.79	3.14	3.26	3.10

Cellular Band - HSUPA						
Modes	WCDMA BAND II			WCDMA BAND V		
Channel	9262 (Low)	9400 (Mid)	9538 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency(MHz)	1852.4	1880	1907.6	1852.4	1880	1907.6
Peak-to-Average Ratio(dB)	4.26	4.19	4.30	5.48	5.60	5.42

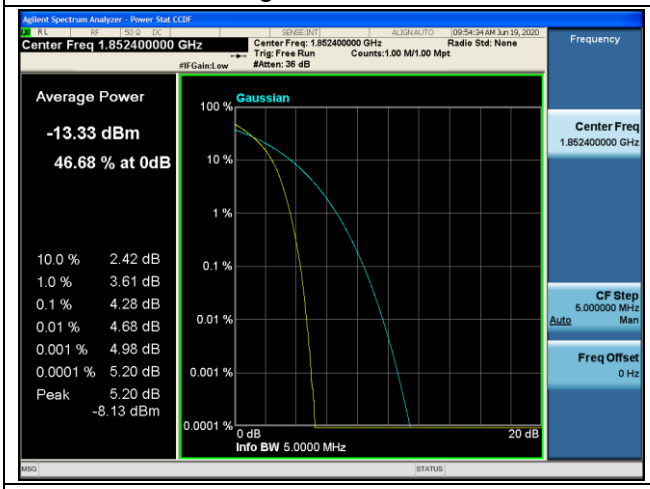
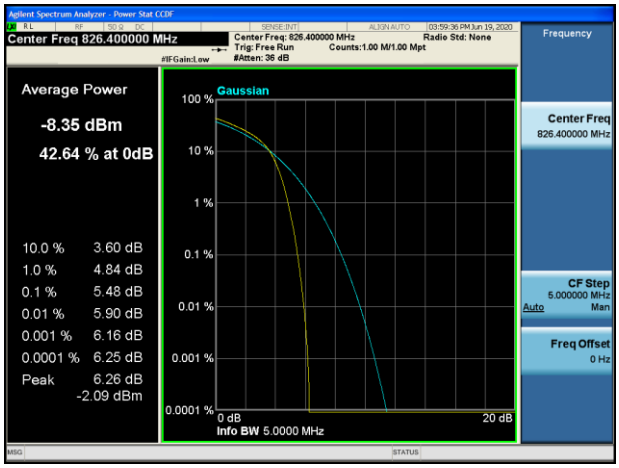
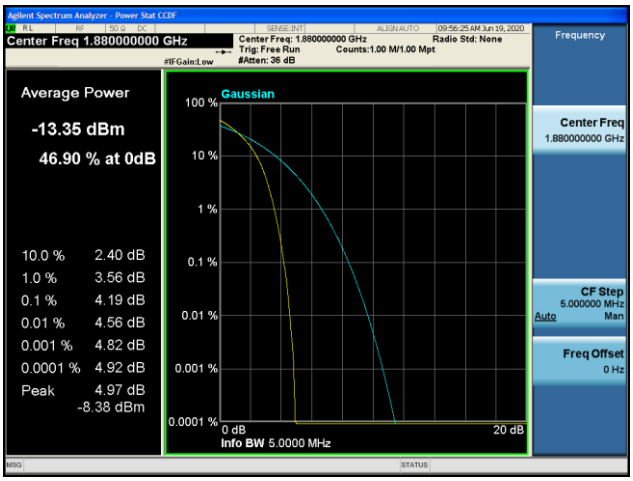
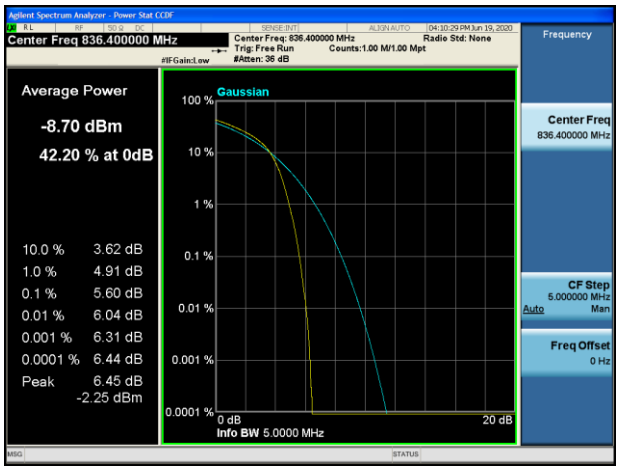
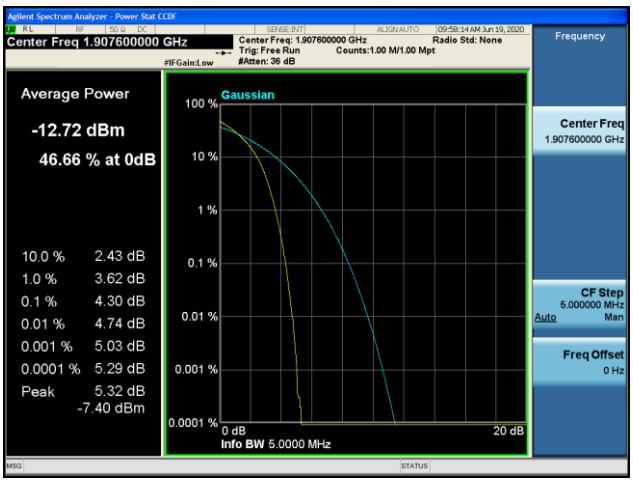
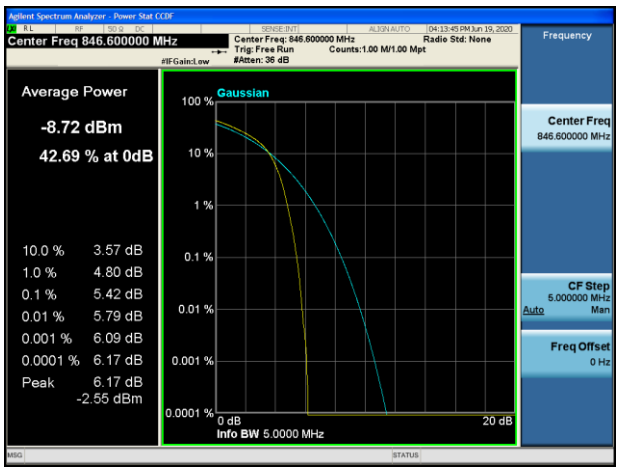
Test plot	
(GPRS850)	(GPRS1900)
Peak-to-Average Ratio on channel 128	Peak-to-Average Ratio on channel 512
	
Peak-to-Average Ratio on channel 190	Peak-to-Average Ratio on channel 661
	
Peak-to-Average Ratio on channel 251	Peak-to-Average Ratio on channel 810
	

Test plot	
(EGPRS850)	(EGPRS1900)
Peak-to-Average Ratio on channel 128	Peak-to-Average Ratio on channel 512
	
Peak-to-Average Ratio on channel 190	Peak-to-Average Ratio on channel 661
	
Peak-to-Average Ratio on channel 251	Peak-to-Average Ratio on channel 810
	

HSDPA

Test plot	
(WCDMA BAND II)	(WCDMA BAND V)
Peak-to-Average Ratio on channel 9262	Peak-to-Average Ratio on channel 4132
	
Peak-to-Average Ratio on channel 9400	Peak-to-Average Ratio on channel 4183
	
Peak-to-Average Ratio on channel 9538	Peak-to-Average Ratio on channel 4233
	

HSUPA

Test plot	
(WCDMA BAND II)	(WCDMA BAND V)
Peak-to-Average Ratio on channel 9262	Peak-to-Average Ratio on channel 4132
	
Peak-to-Average Ratio on channel 9400	Peak-to-Average Ratio on channel 4183
	
Peak-to-Average Ratio on channel 9538	Peak-to-Average Ratio on channel 4233
	

Note: all modes of EUT have been tested; only the data of worst case mode is reported.

5.3 Occupied bandwidth

5.3.1 Test method

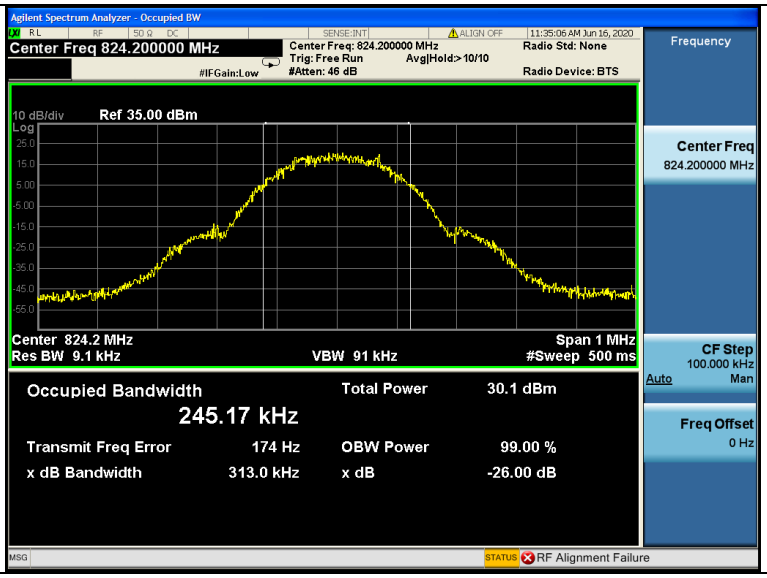
1. The EUT was directly connected to the spectrum analyzer and Base station via power splitter as show in the block diagram above.
2. The resolution bandwidth of the Spectrum Analyzer is set to at least 1% of the occupied bandwidth.
3. The low, middle and the high channels are selected to perform tests respectively.
4. Set the frequency range of the Spectrum Analyzer suitably to capture the waveform; search peak; make a line whose value is 26dB lower than the peak; mark two points which the line intersected the waveform at; finally record the delta of the two points as the occupied bandwidth and the plot.
5. Set the Spectrum Analyzer Occupied bandwidth function to measure the 99% occupied bandwidth.

5.3.2 Test result

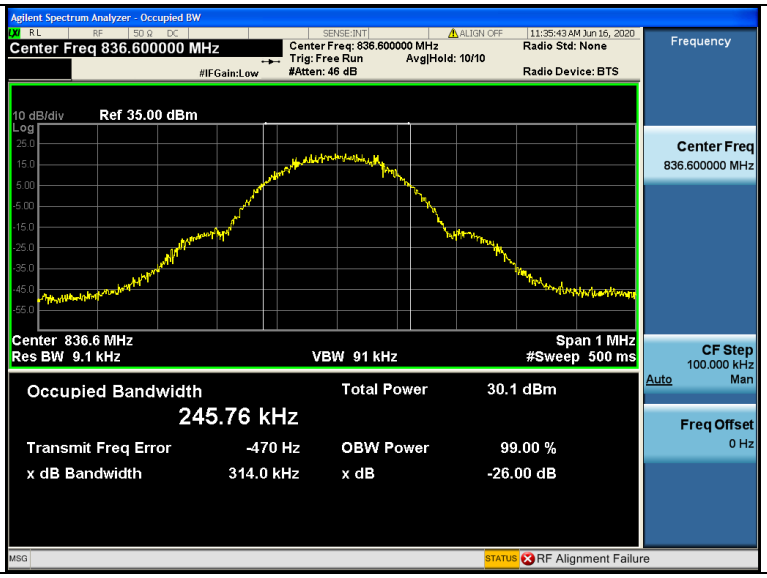
Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)
GPRS850	128	245.17	313.0
	190	245.76	314.0
	251	245.48	318.2
EGPRS850	128	249.23	320.7
	190	249.71	321.3
	251	247.13	319.0
GPRS1900	512	244.05	315.3
	661	246.03	316.9
	810	244.44	314.0
EGPRS1900	512	252.57	323.9
	661	255.94	324.7
	810	256.94	329.9

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)
WCDMA Band II	9262	4074.8	4644
	9400	4093.0	4676
	9538	4079.3	4647
WCDMA Band V	826.4	4061.3	4596
	836.4	4061.8	4603
	846.6	4068.8	4609

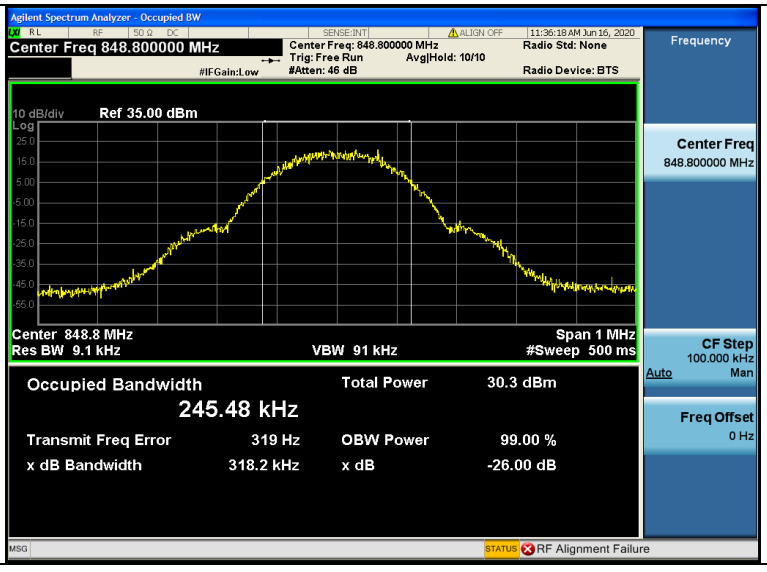
GPRS850-128



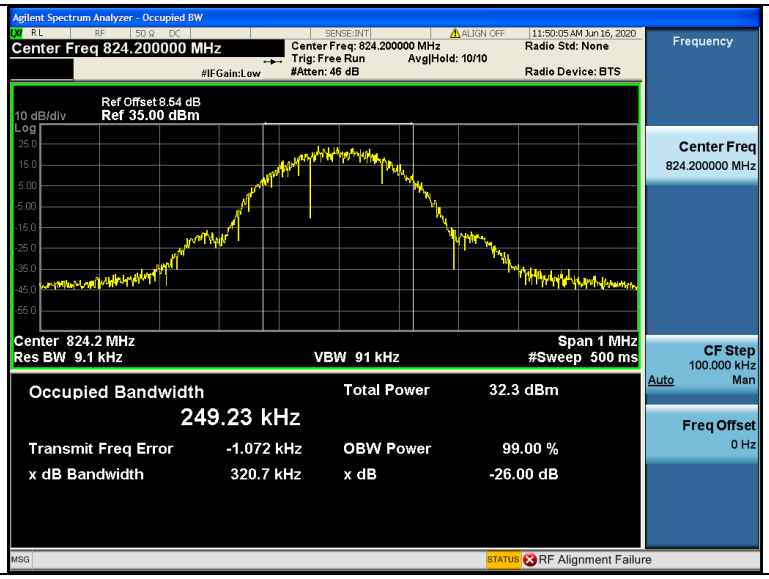
GPRS850-190



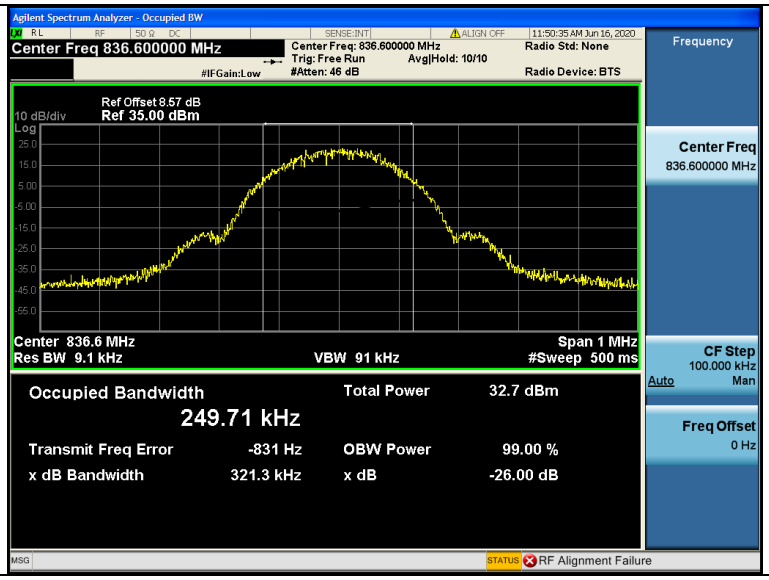
GPRS850-251



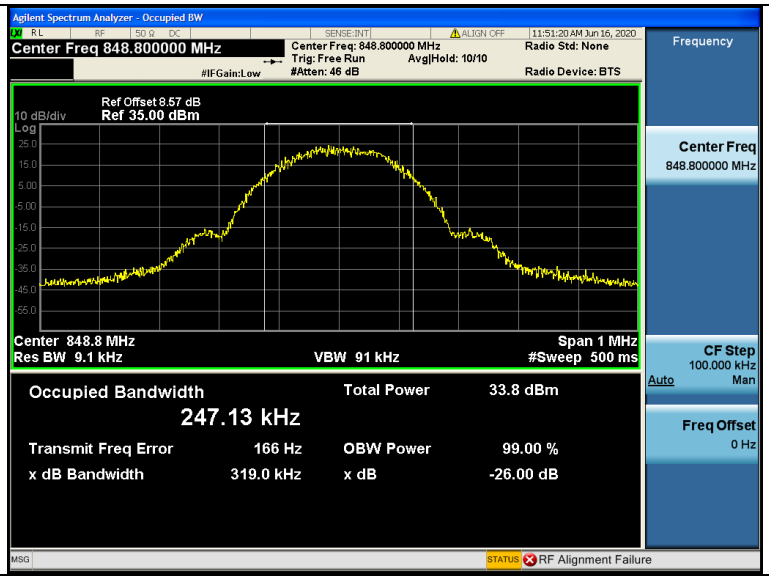
EGPRS850-128



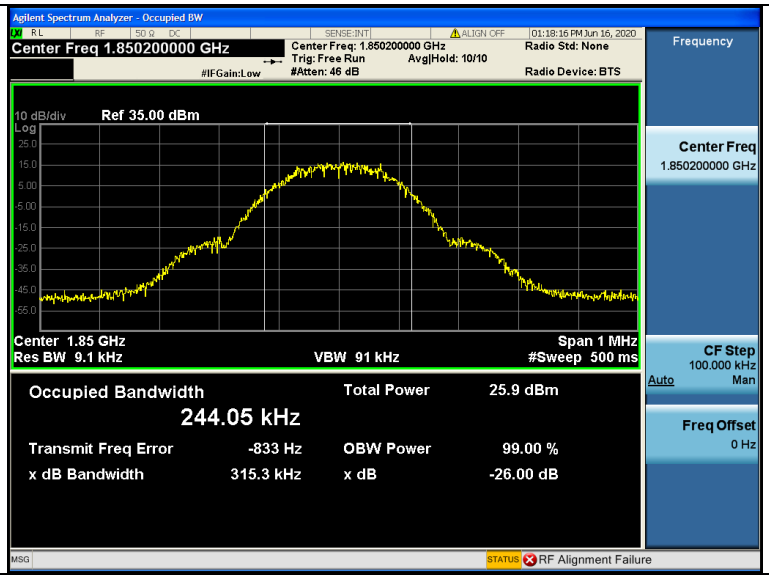
EGPRS850-190



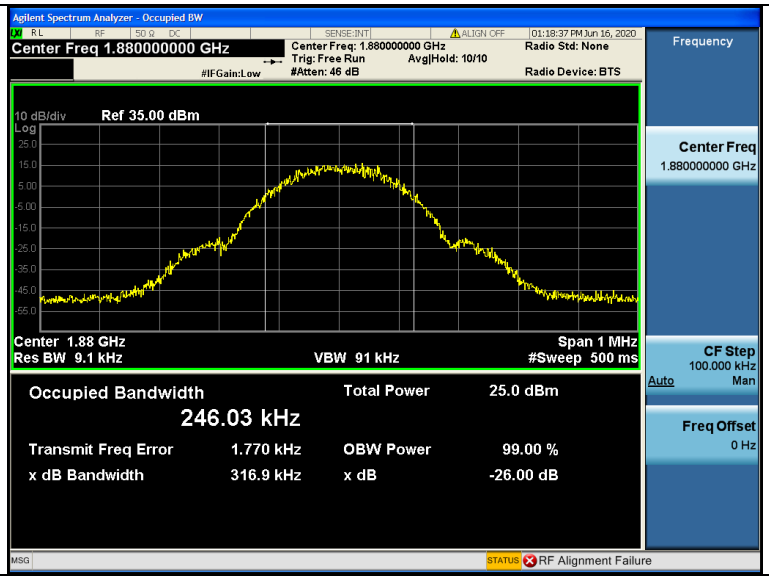
EGPRS850-251



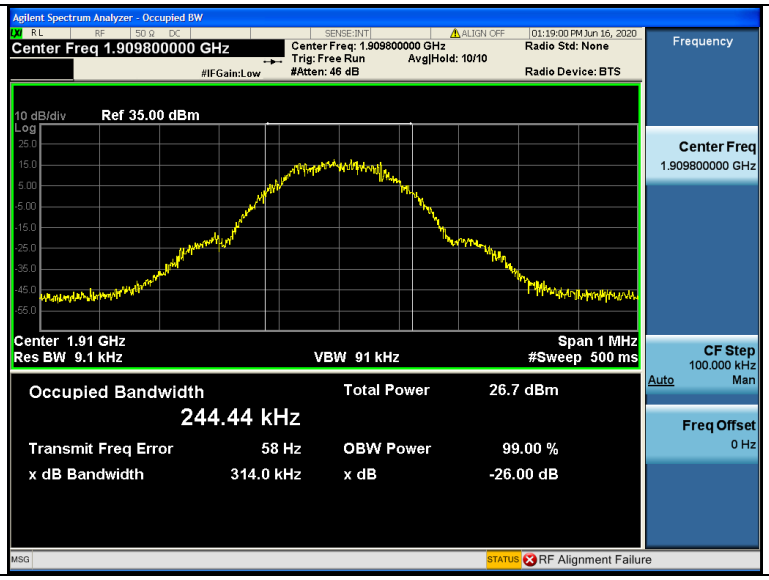
GPRS1900-512



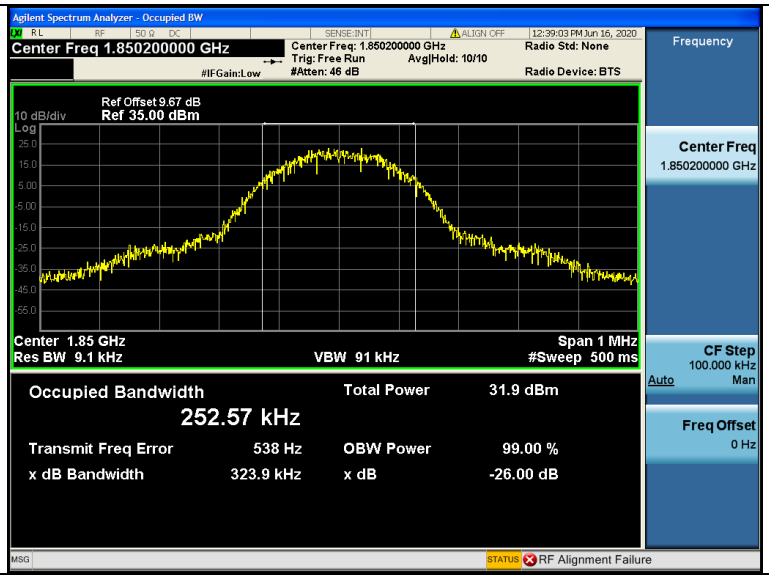
GPRS1900-661



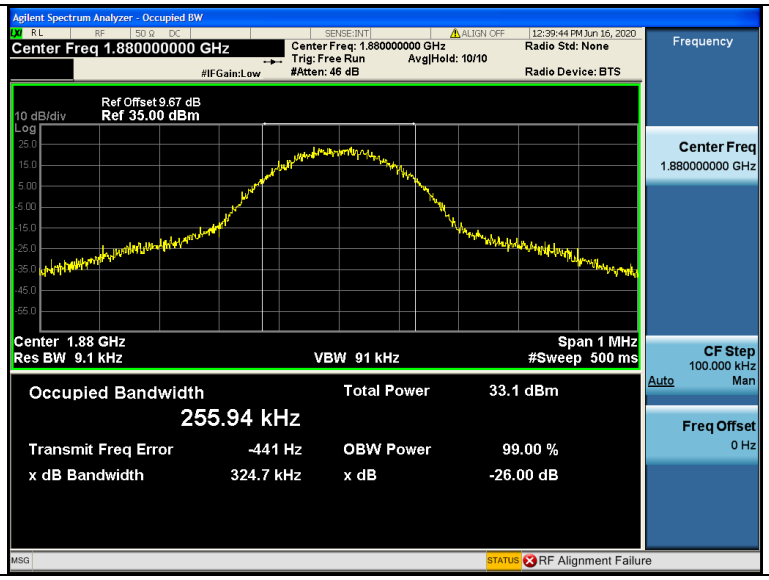
GPRS1900-810



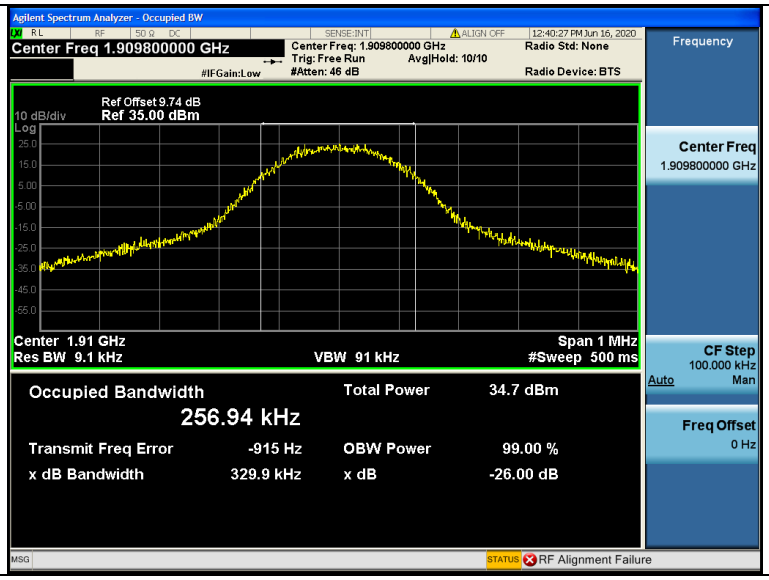
EGPRS1900-512



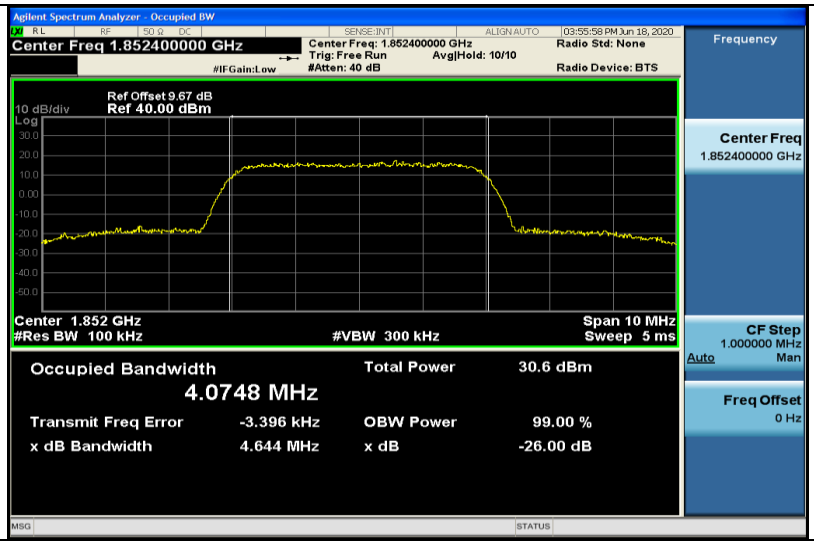
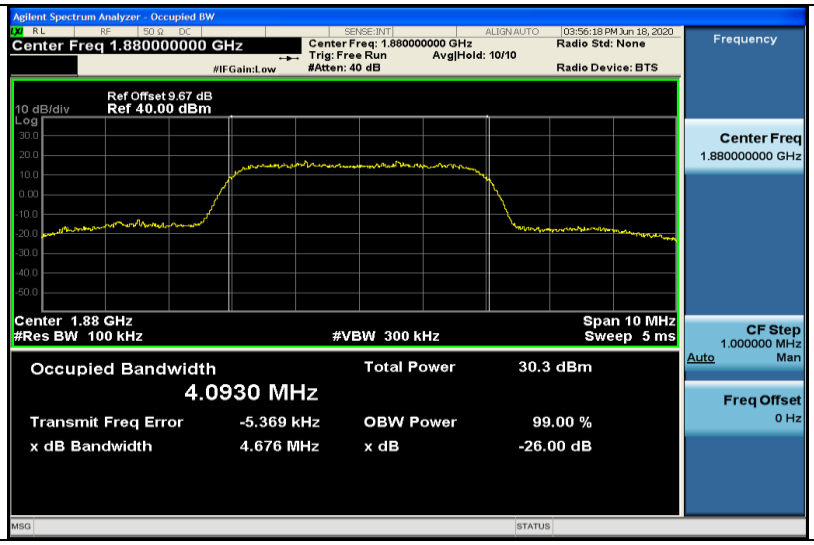
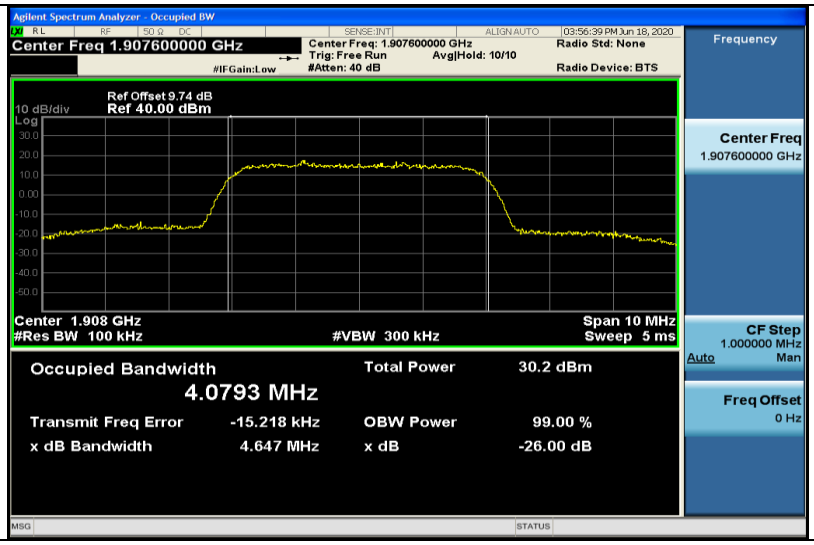
EGPRS1900-661



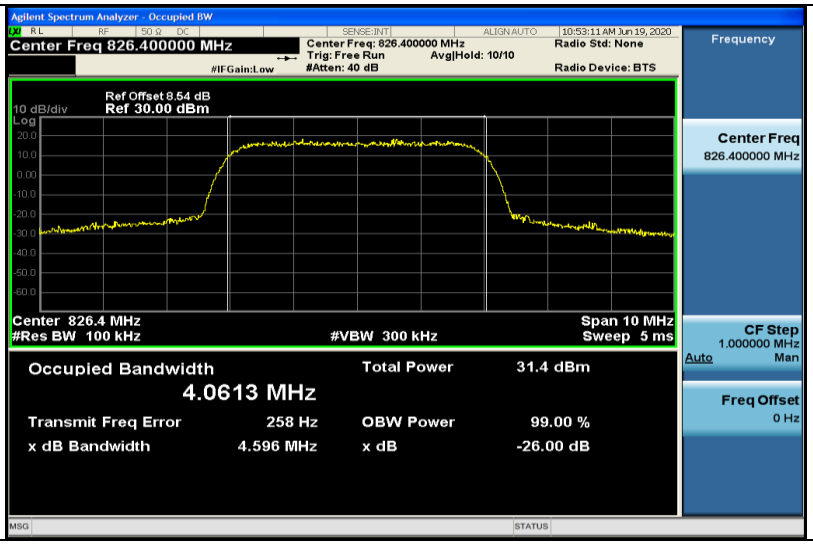
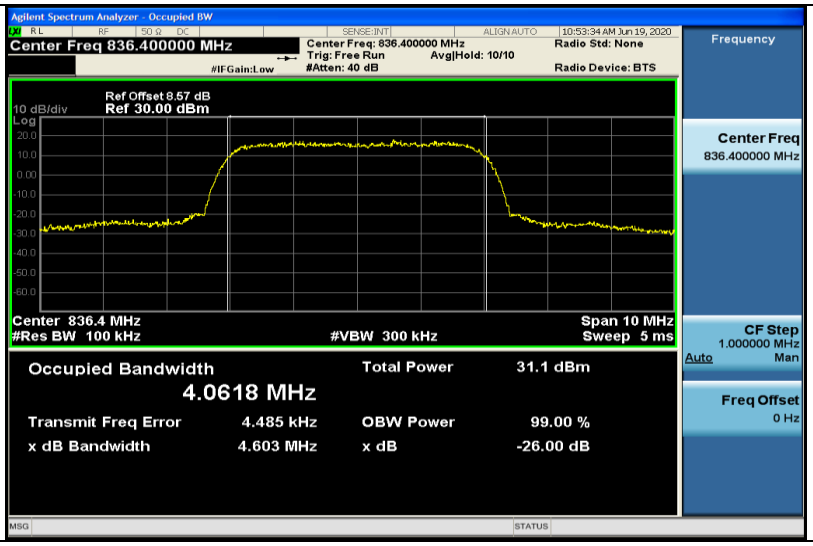
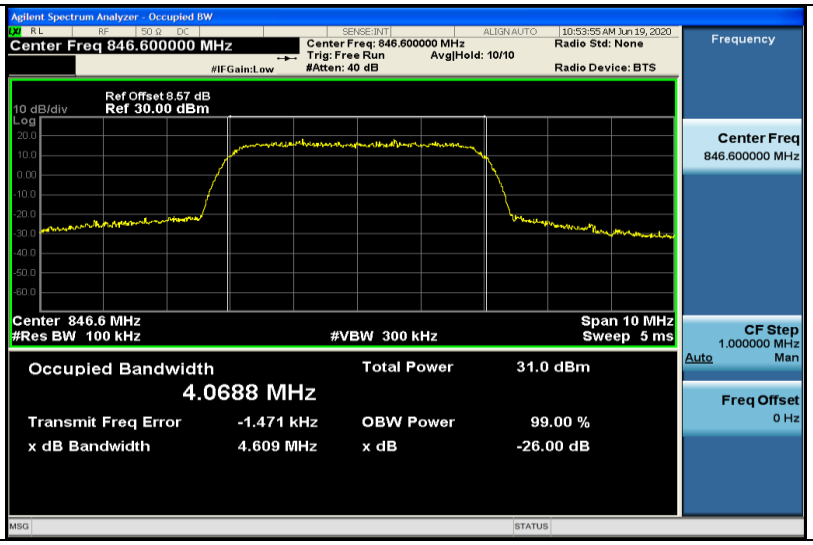
EGPRS1900-810



Band II

Band II-9262

Band II-9400

Band II-9538


Band V

Band V-4132

Band V-4182

Band V-4233


Note: All EUT modes have been tested, and the report only reflects the worst case mode HSDPA data.

5.4 Conducted spurious emissions

5.4.1 Limits

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+10log (P) dB

5.4.2 Test method

1, The EUT was directly connected to the spectrum analyzer and Base station via power splitter as show in the block diagram above.

2, Spectrum Setting:

Frequency bellow 1 GHz: RBW=100 kHz, VBW=300 kHz.

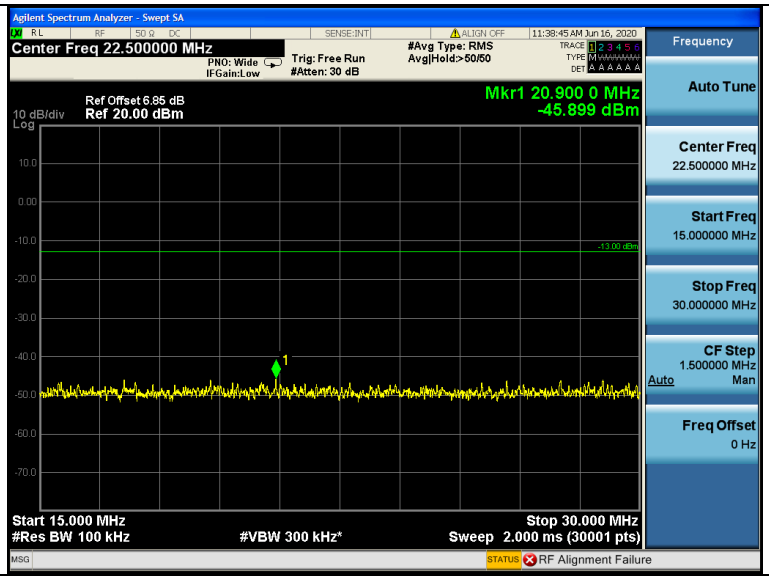
Frequency above 1 GHz: RBW=1 MHz, VBW=3 MHz.

3, The low, middle and high channels of each band and mode's spurious emissions for 30 MHz to 10^{th} Harmonic were measured by Spectrum analyzer.

5.4.3 Test result

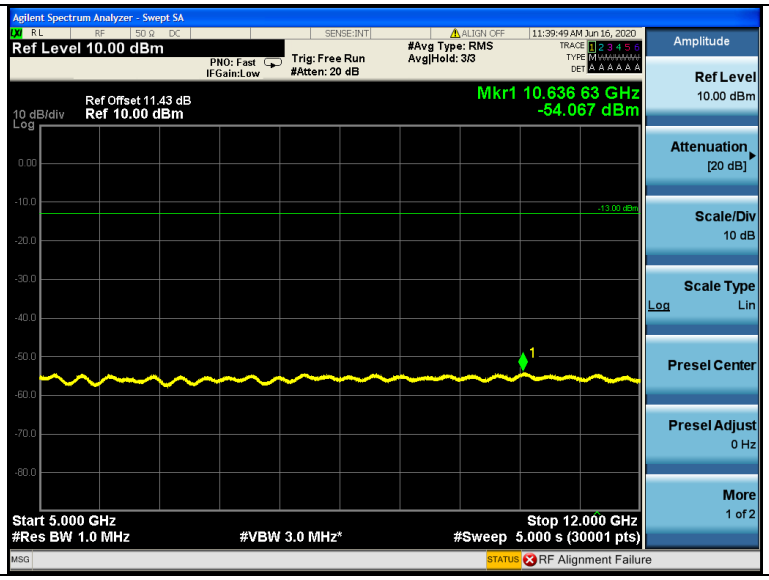
GPRS850

GPRS850-190-15~30

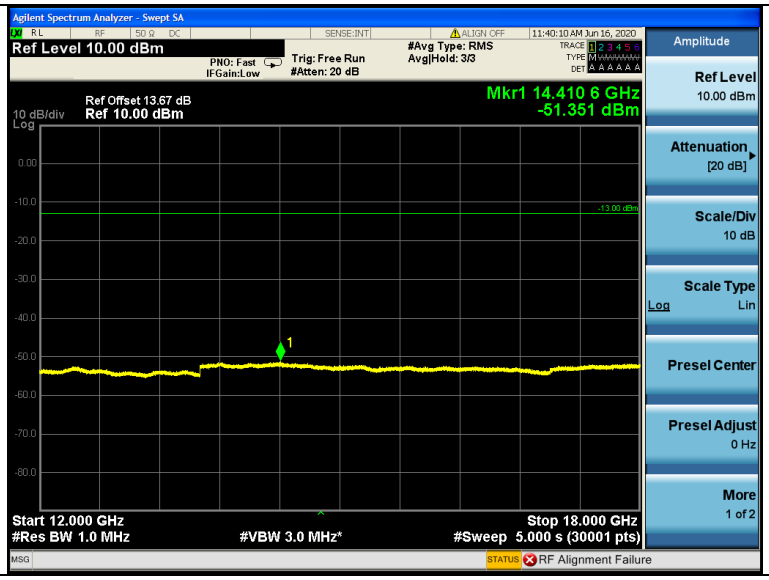


GPRS850-190-1000~5000

GPRS850-190-5000~12000

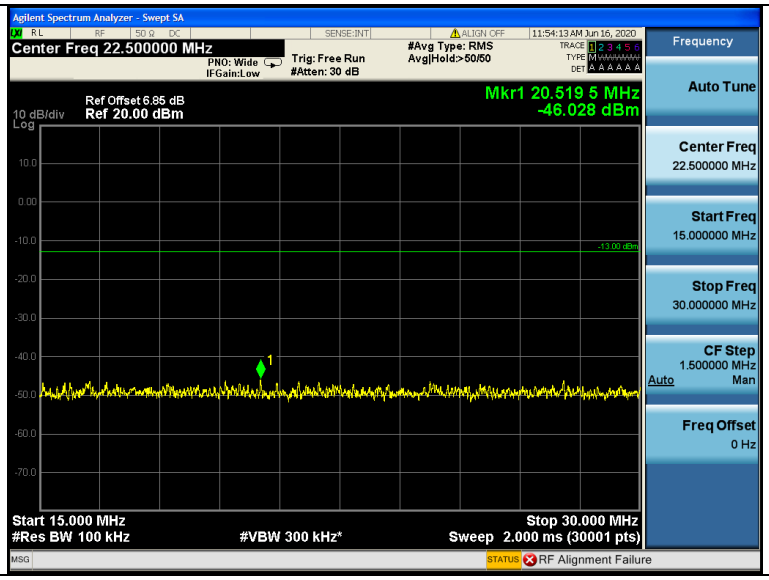


GPRS850-190-12000~18000



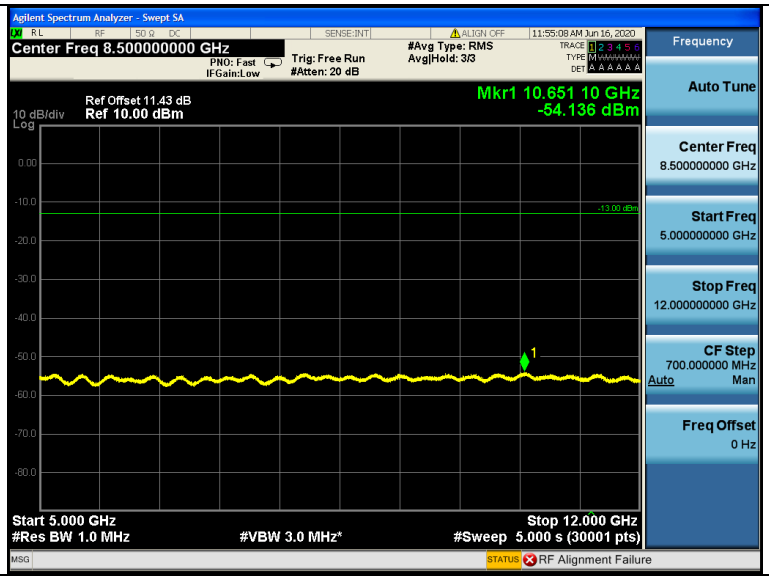
EGPRS850

EGPRS850-190-15~30



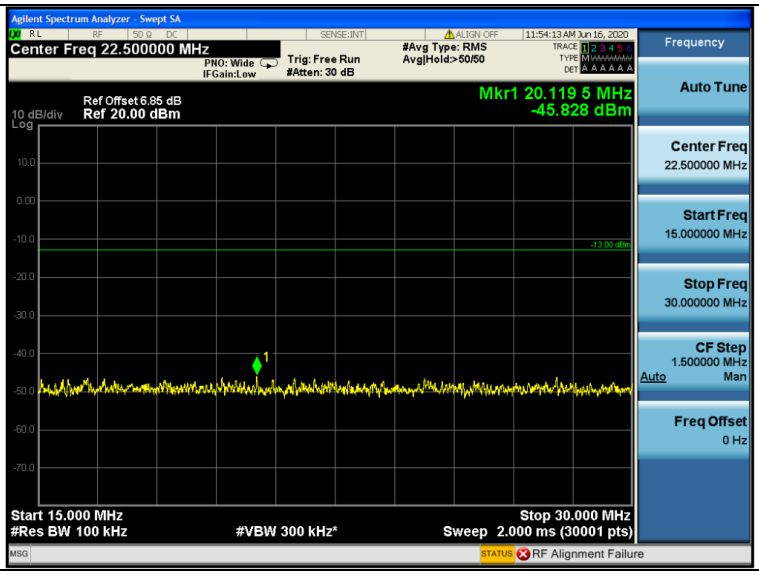
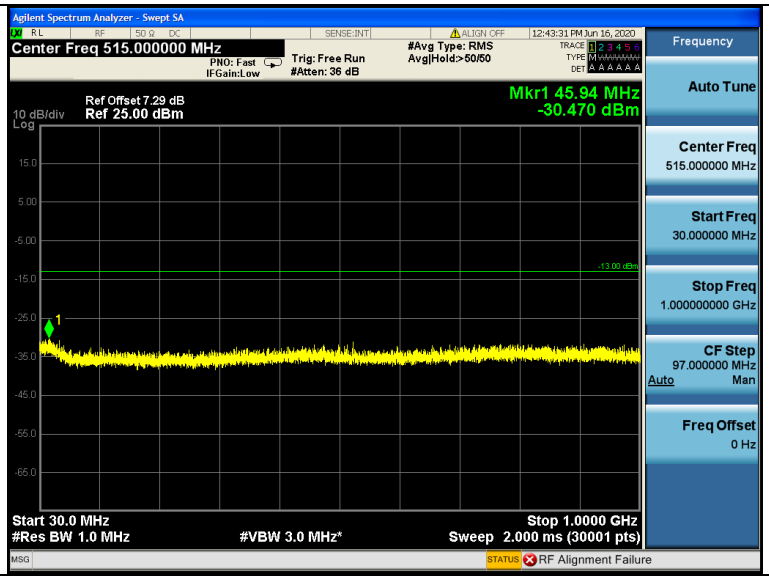
EGPRS850-190-1000~5000

EGPRS850-190-5000~12000



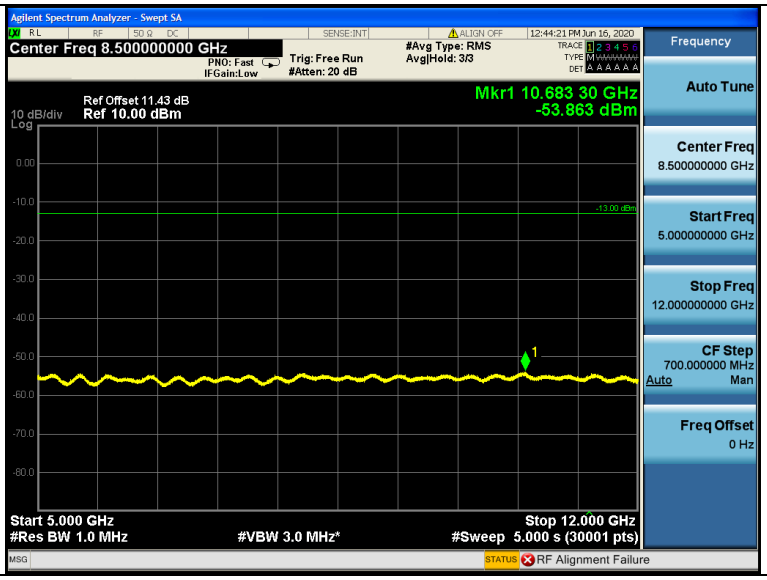
EGPRS850-190-12000~18000

EGPRS1900

EGPRS1900-661-15~30

EGPRS1900-661-30~1000


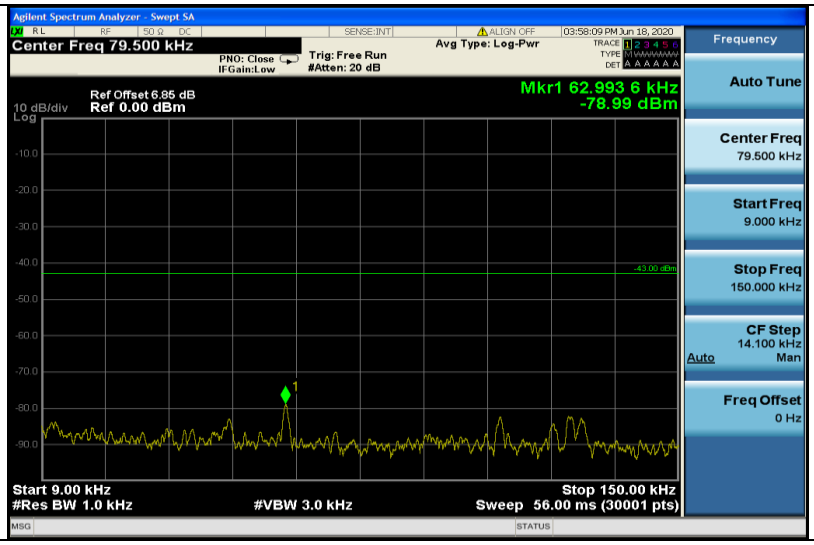
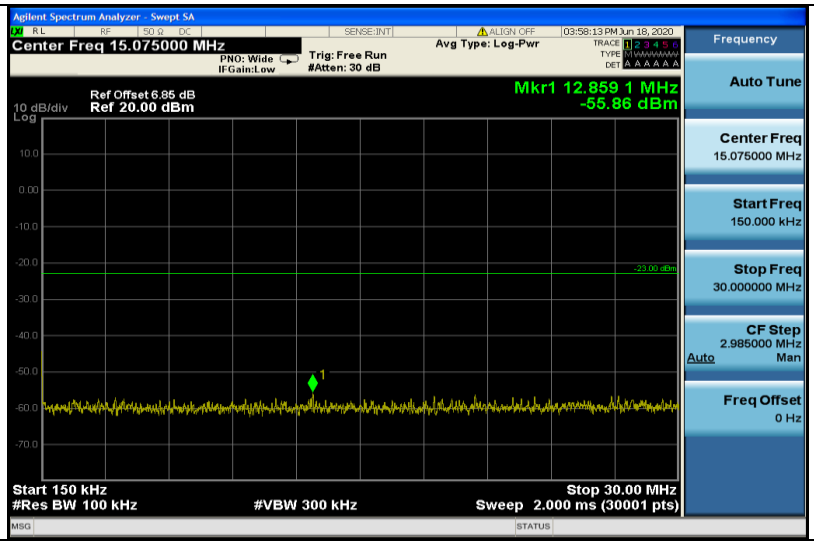
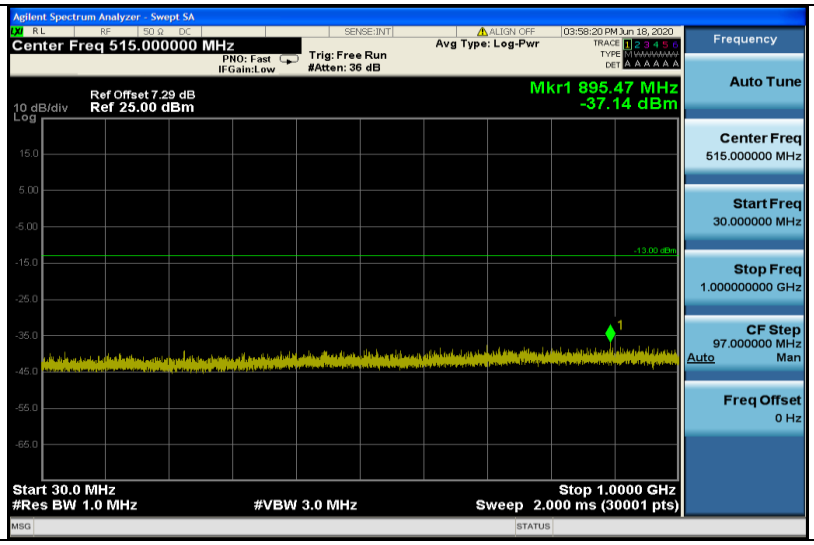
EGPRS1900-661-1000~5000

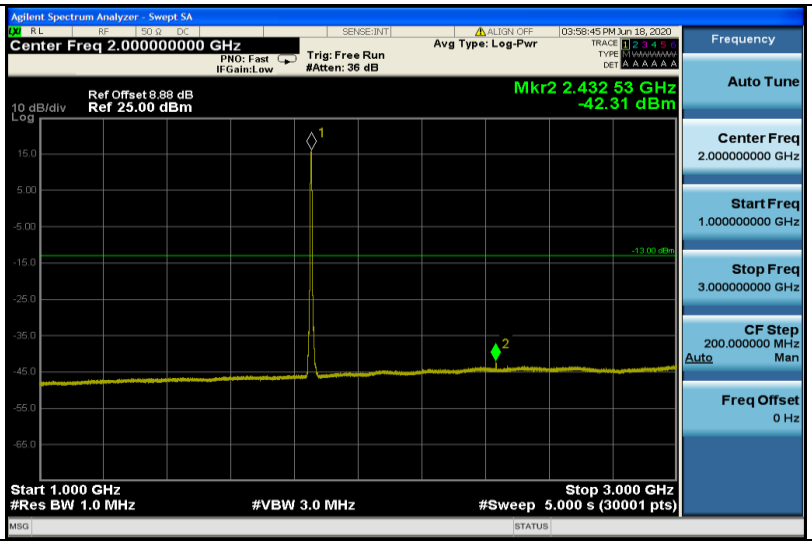
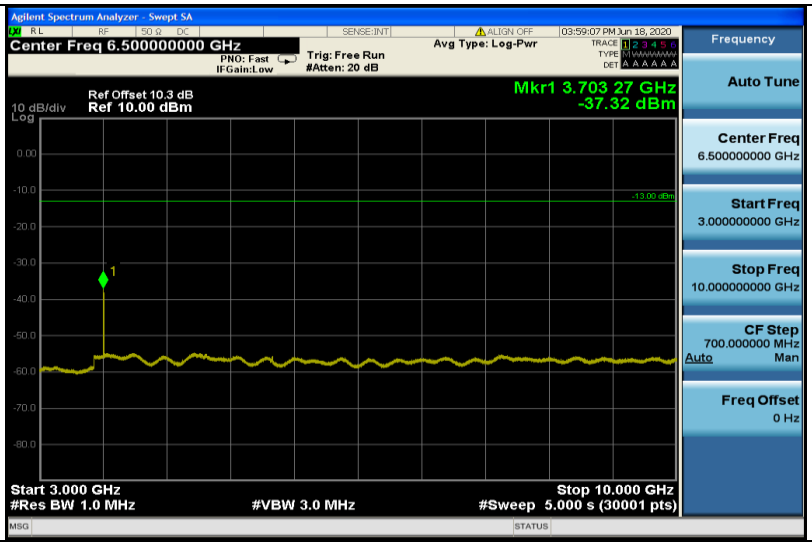
EGPRS1900-661-5000~12000



EGPRS1900-661-12000~26500

WCDMA Band II

Band II-9262-0.009~0.15

Band II-9262-0.15~30

Band II-9262-30~1000


Band II-9262-1000~3000

Band II-9262-3000~10000

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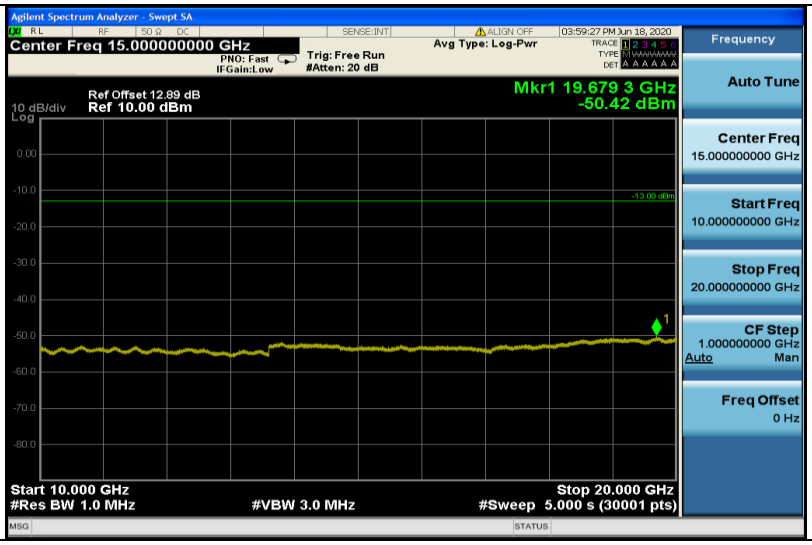

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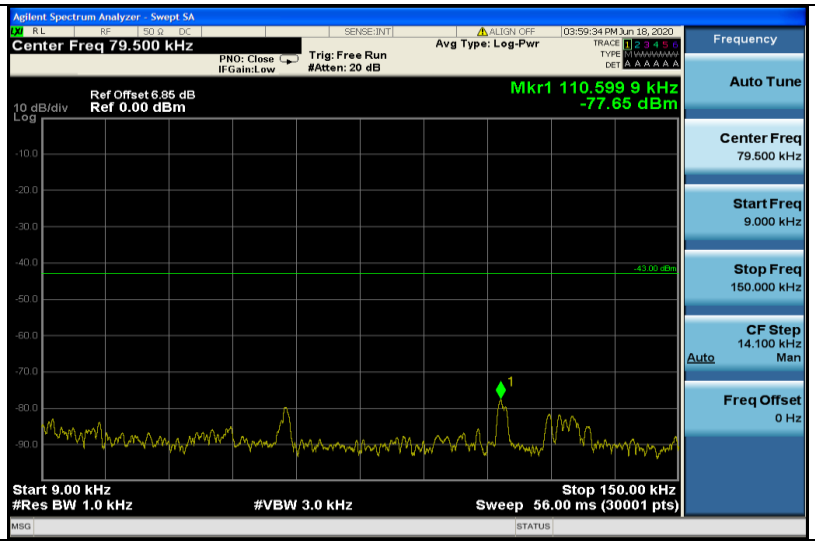
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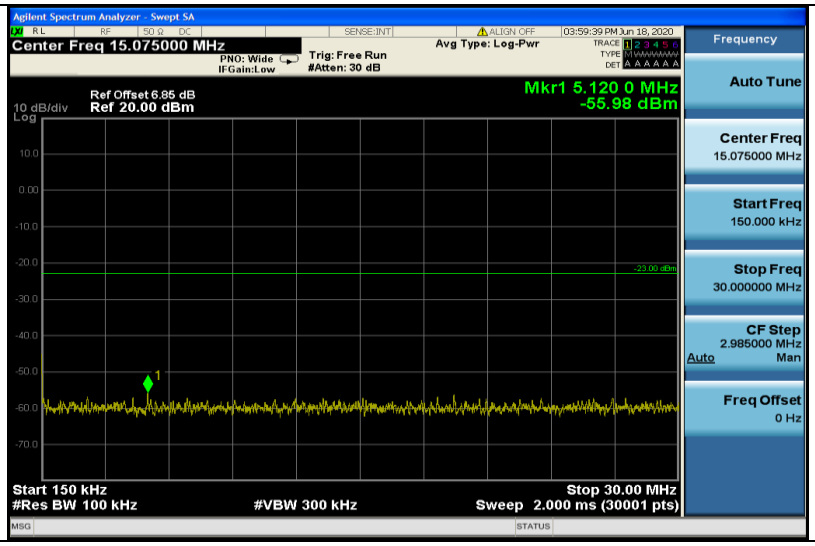
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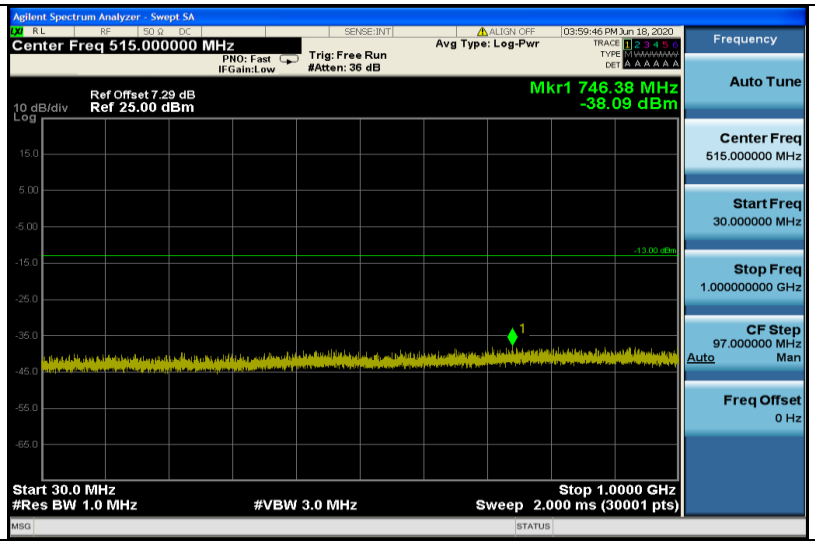

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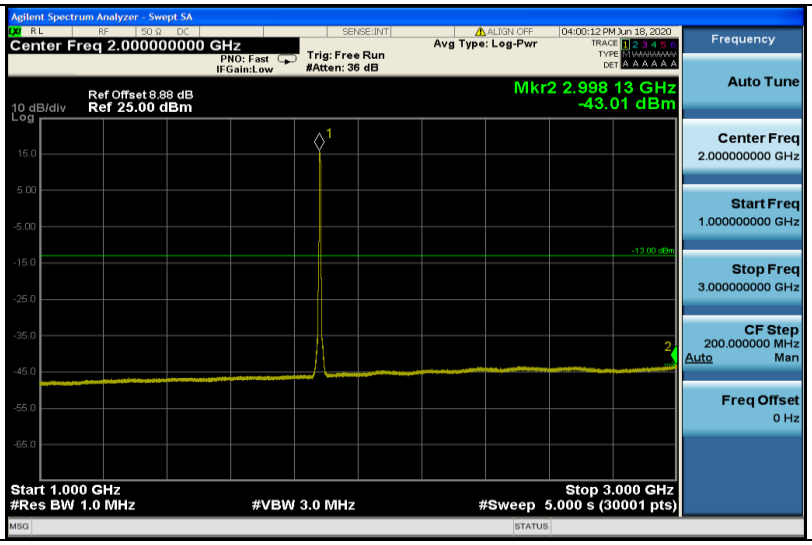

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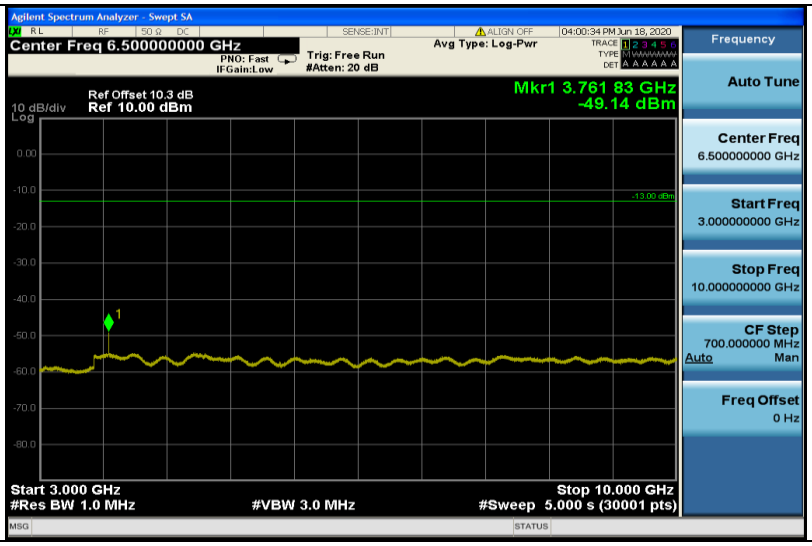
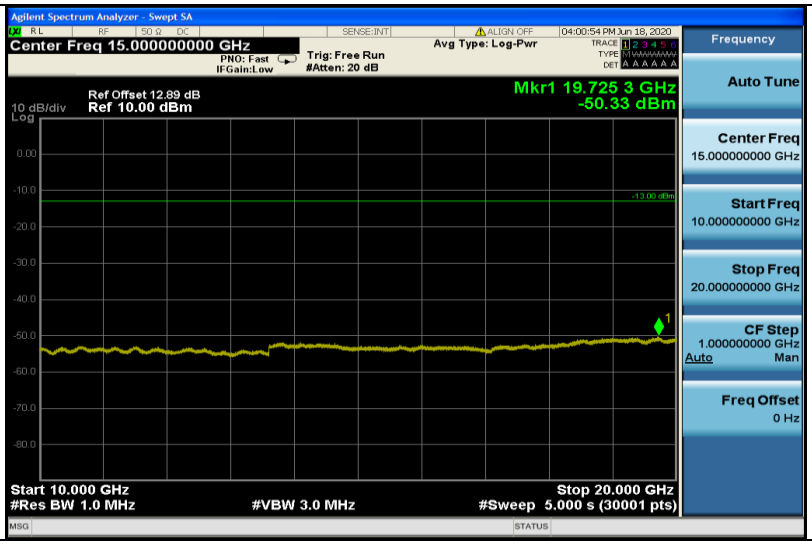
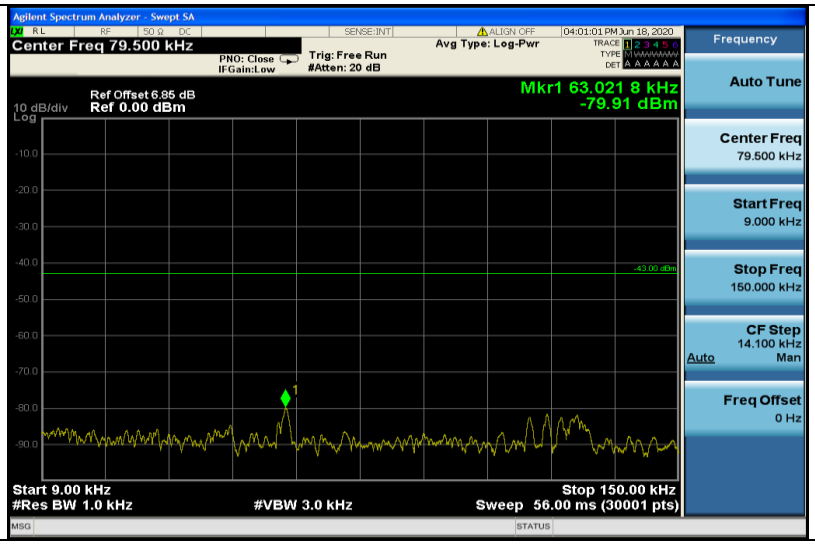
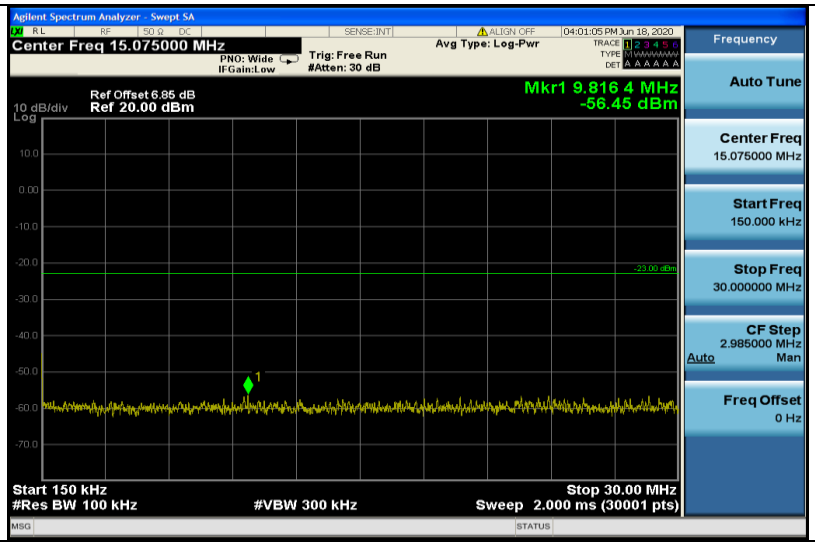


Band II-9400-10000~20000



Band II-9538-0.009~0.15

Band II-9538-0.15~30

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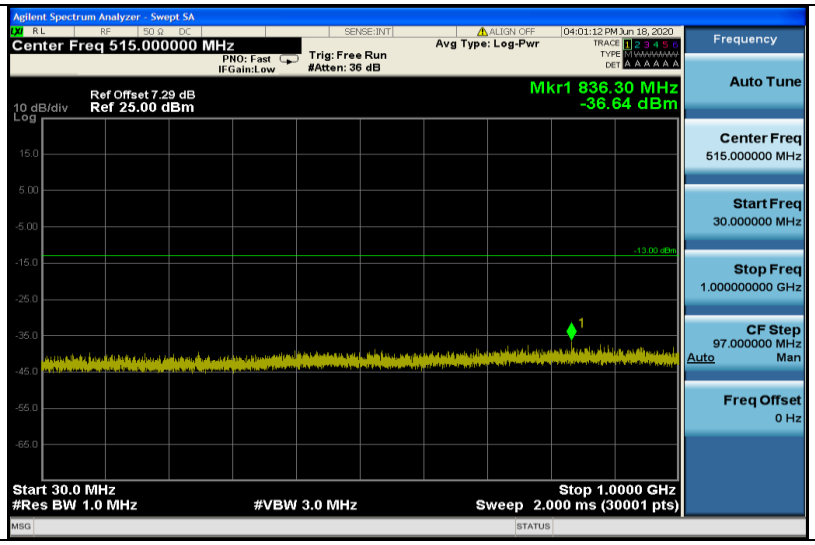
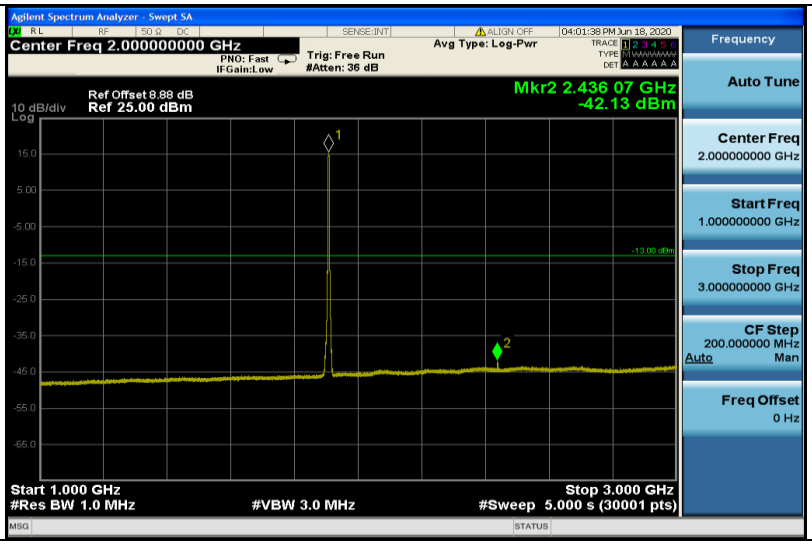
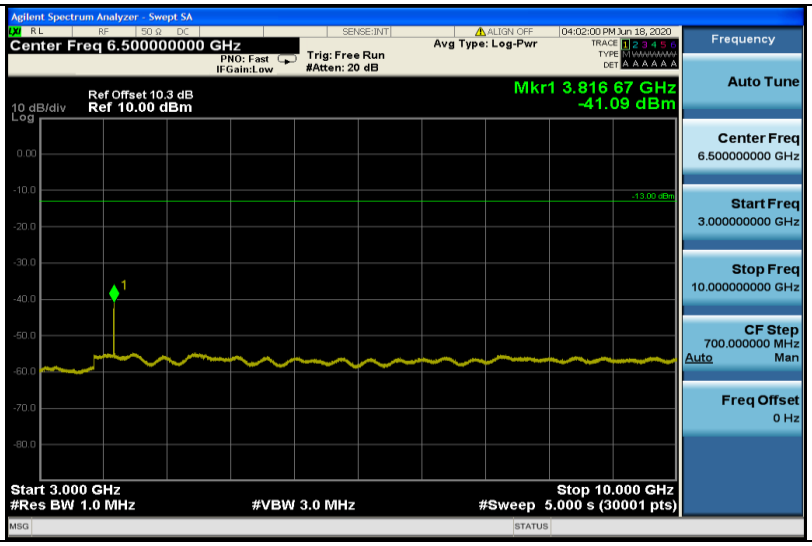


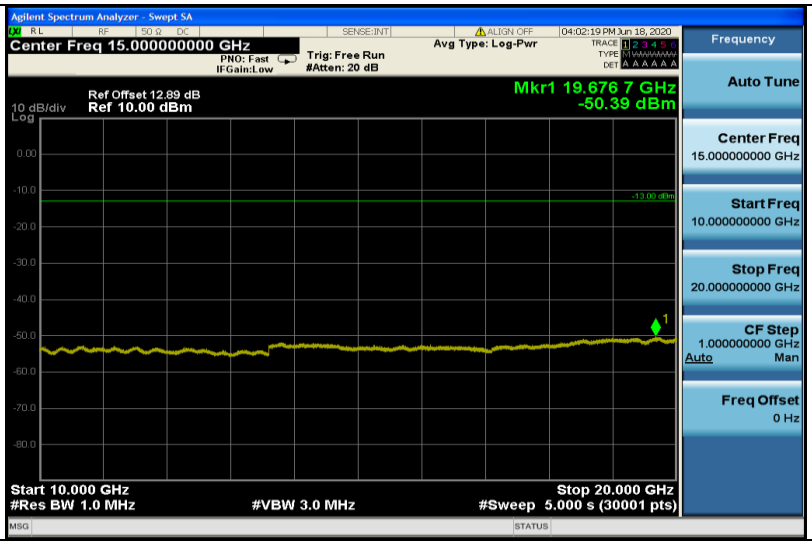
Band II-9538-1000~3000



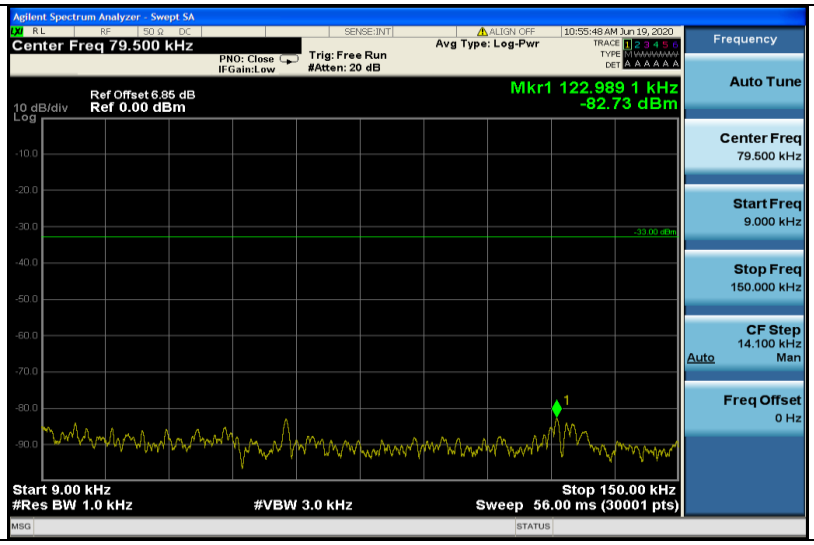
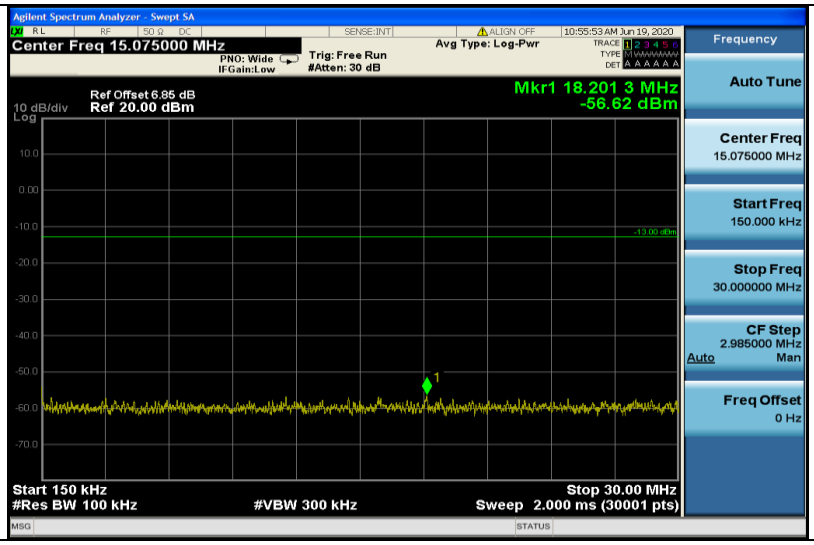
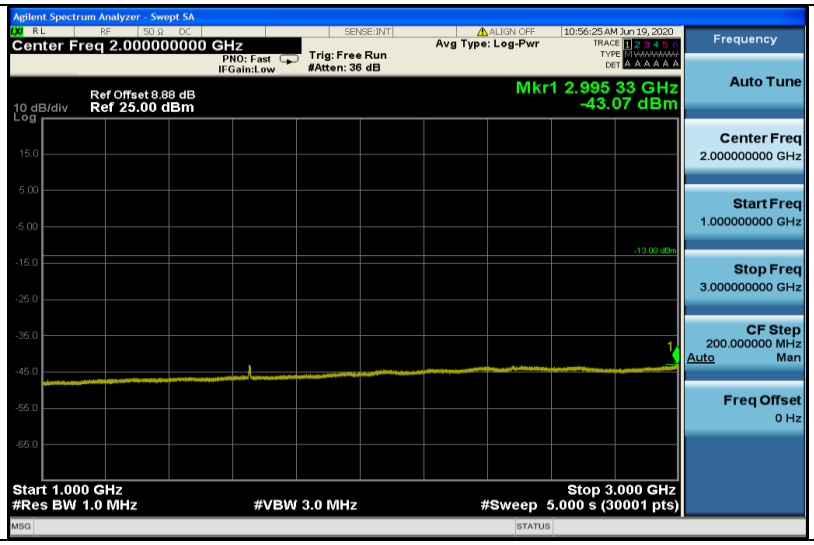
Band II-9538-3000~10000

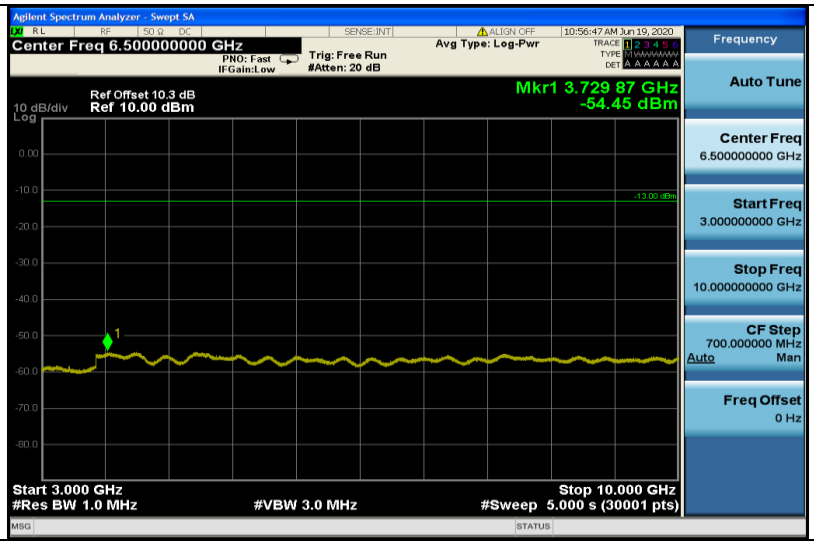
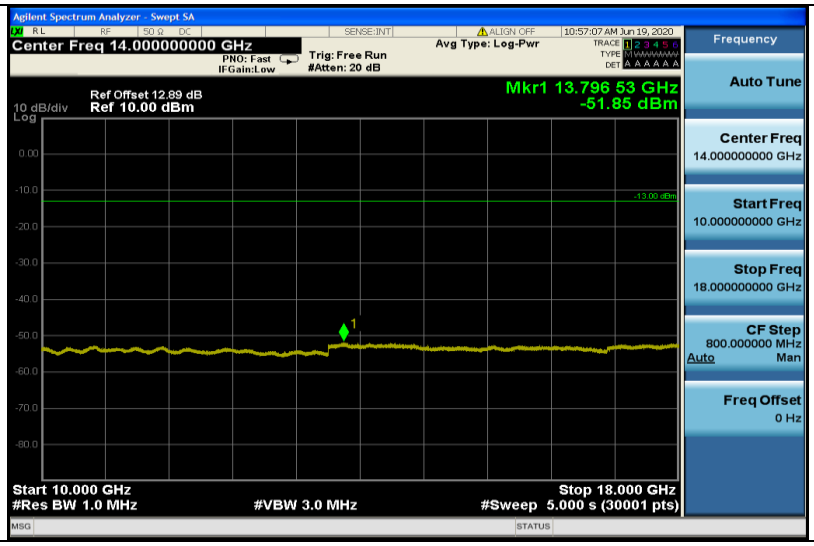
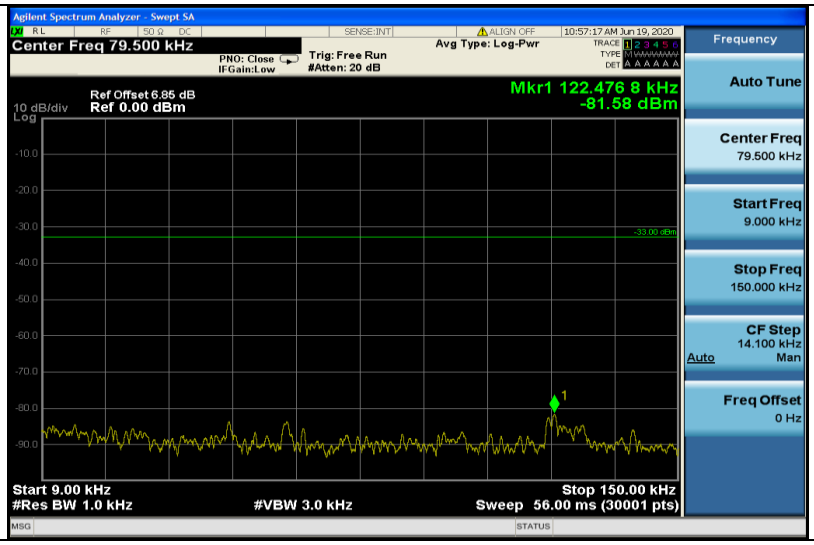


Band II-9538-10000~20000



WCDMA Band V

Band V-4132-0.009~0.15

Band V-4132-0.15~30

Band V-4132-1000~3000


Band V-4132-3000~10000

Band V-4132-10000~18000

Band V-4182-0.009~0.15


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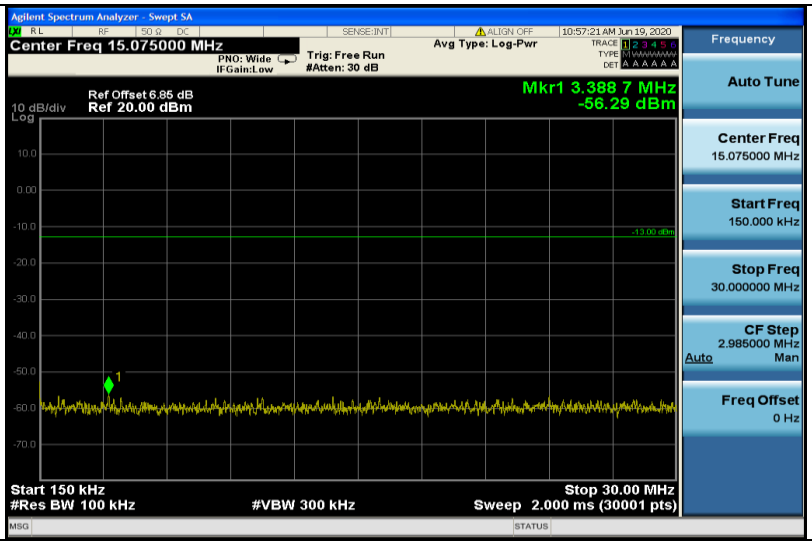
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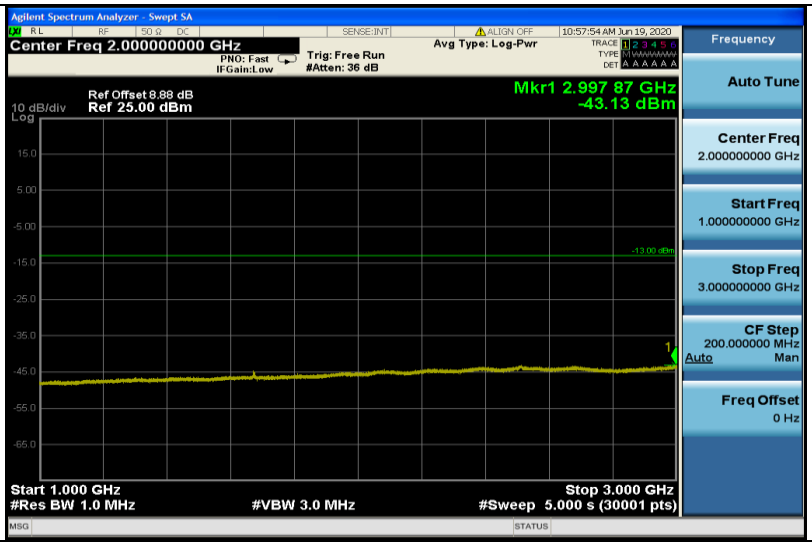
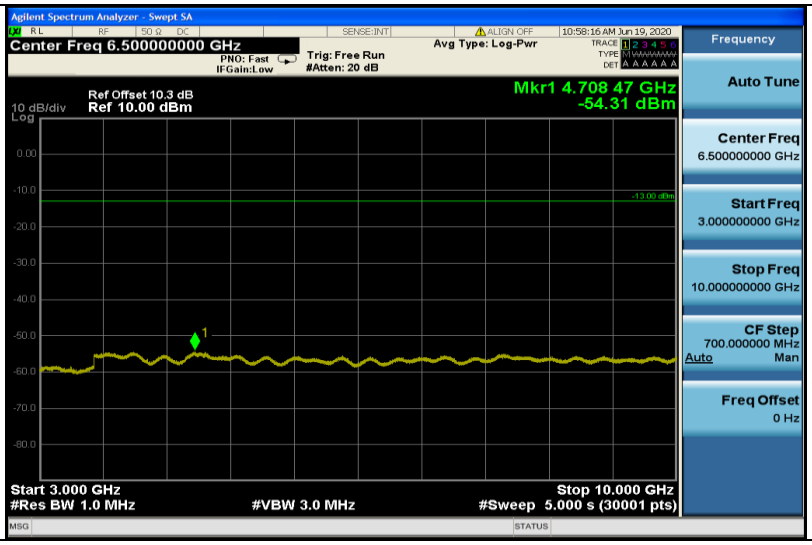
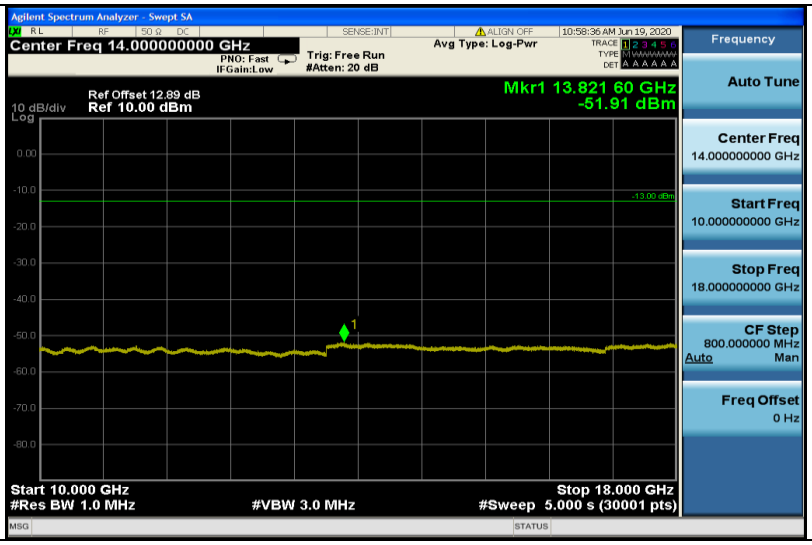
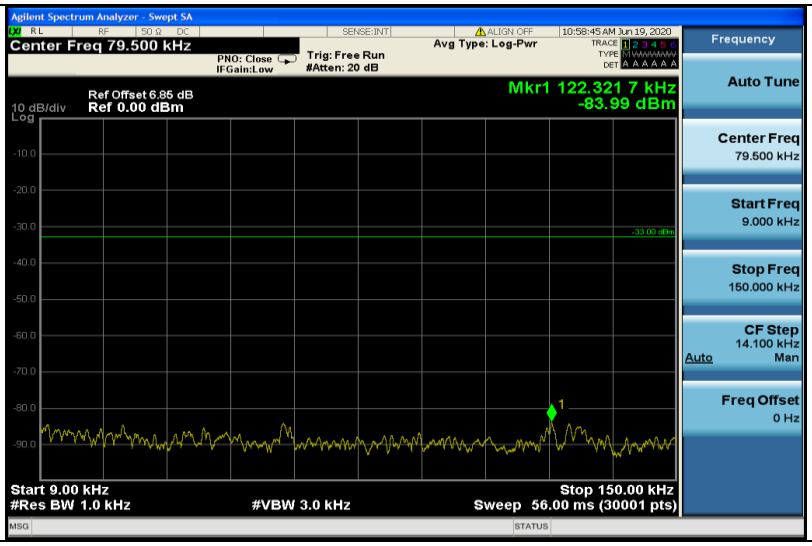
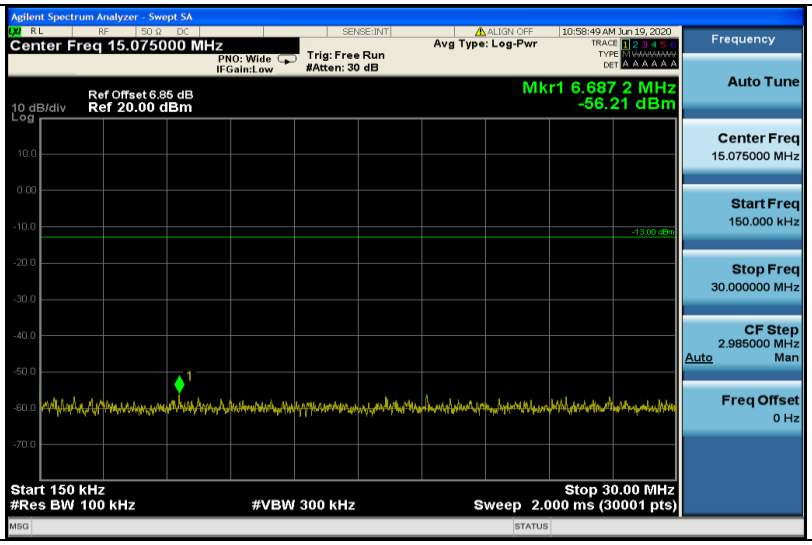
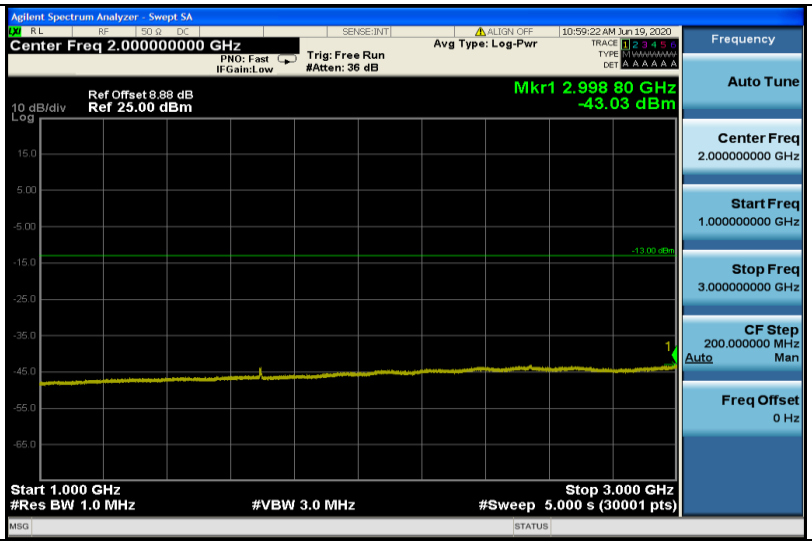
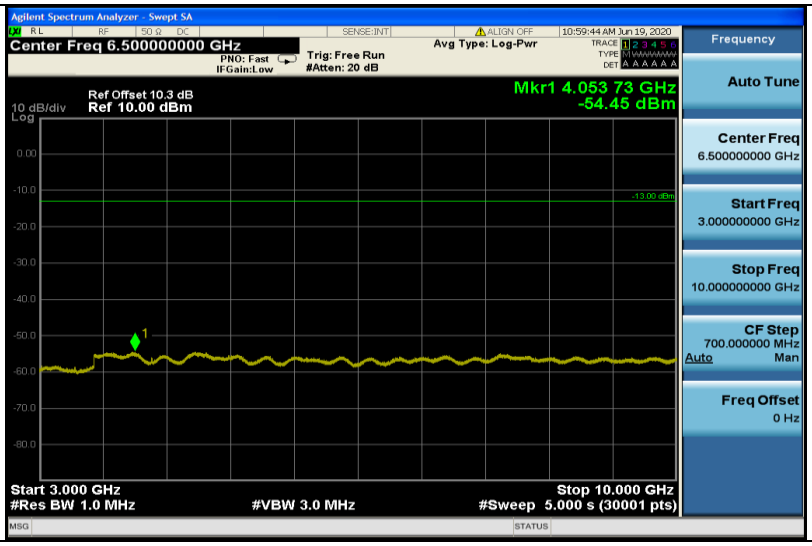
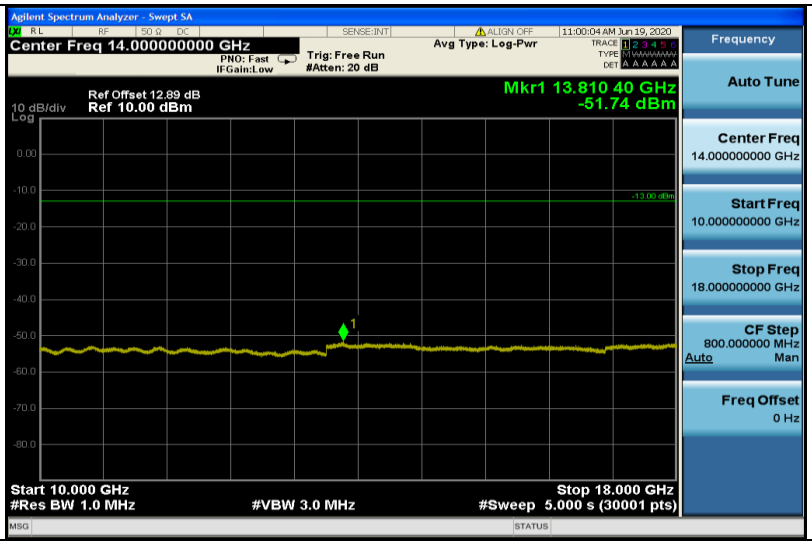

Band V-4182-3000~10000


Band V-4182-10000~18000

Band V-4233-0.009~0.15

Band V-4233-0.15~30


Band V-4233-1000~3000

Band V-4233-3000~10000

Band V-4233-10000~18000


Note: all modes of EUT have been tested; only the data of worst case mode is reported.

5.5 Band edge

5.5.1 Limits

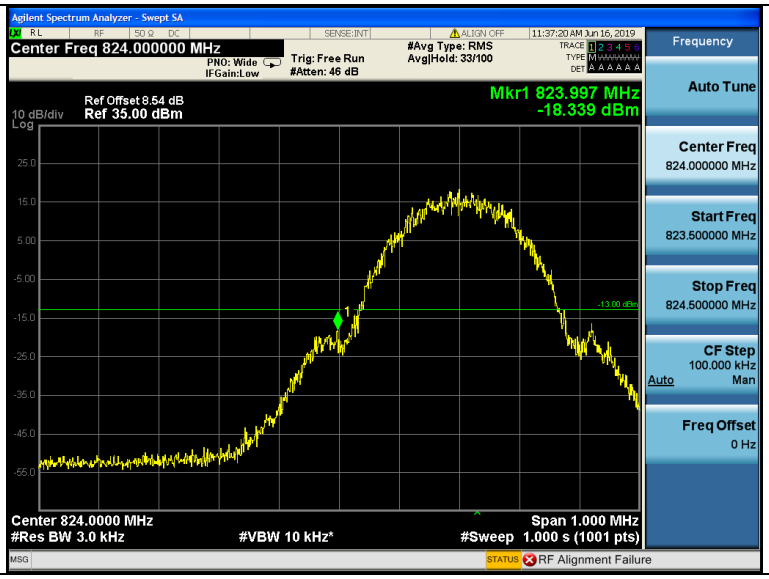
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10log (P) dB, for all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm

5.5.2 Test method

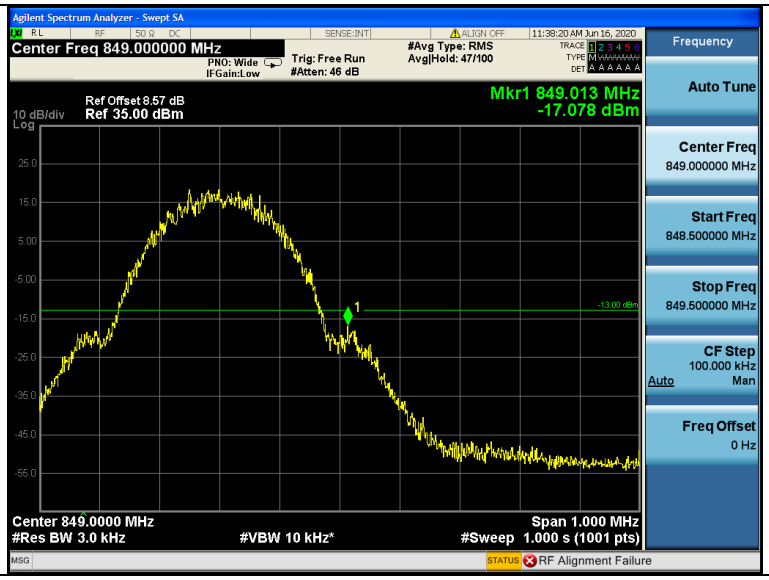
The testing follows FCC KDB 971168 D01v03r01 Section 6.0.
The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
The band edges of low and high channels for the highest RF powers were measured.
The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
= P(W) - [43 + 10log(P)] (dB)
= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
= -13dBm.

5.5.3 Test result

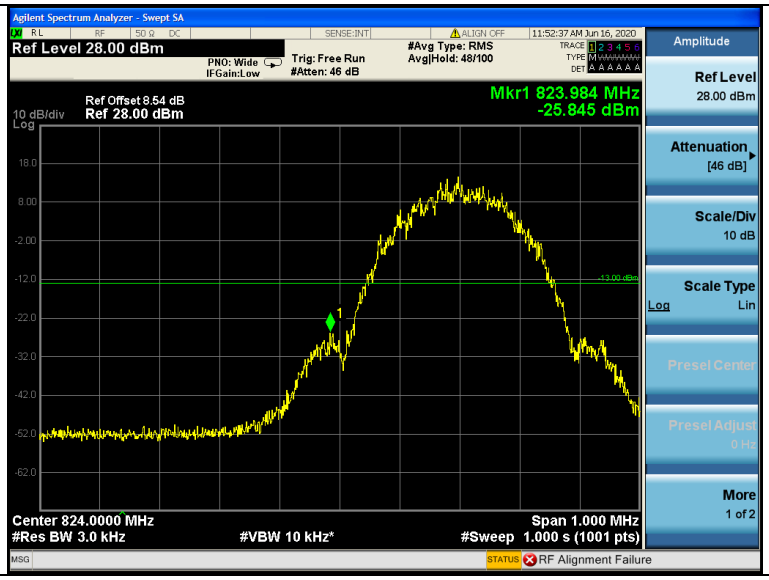
GPRS850-128



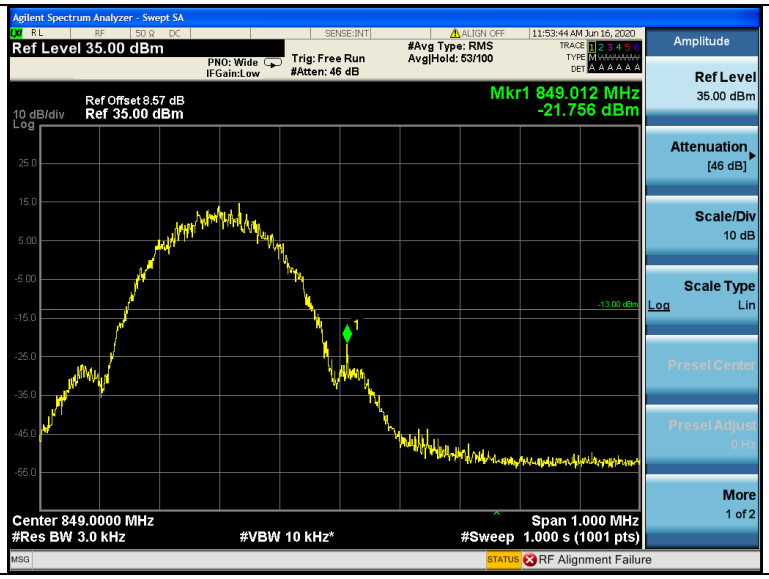
GPRS850-251



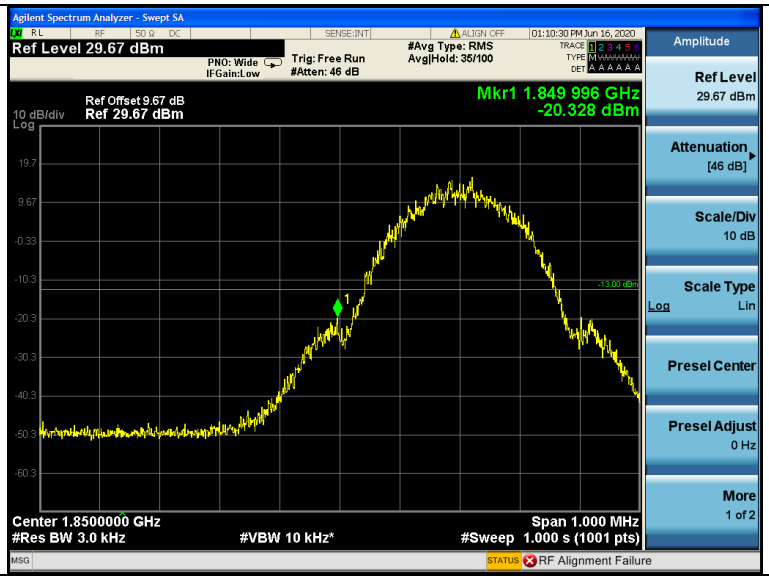
EGPRS850-128



EGPRS850-251



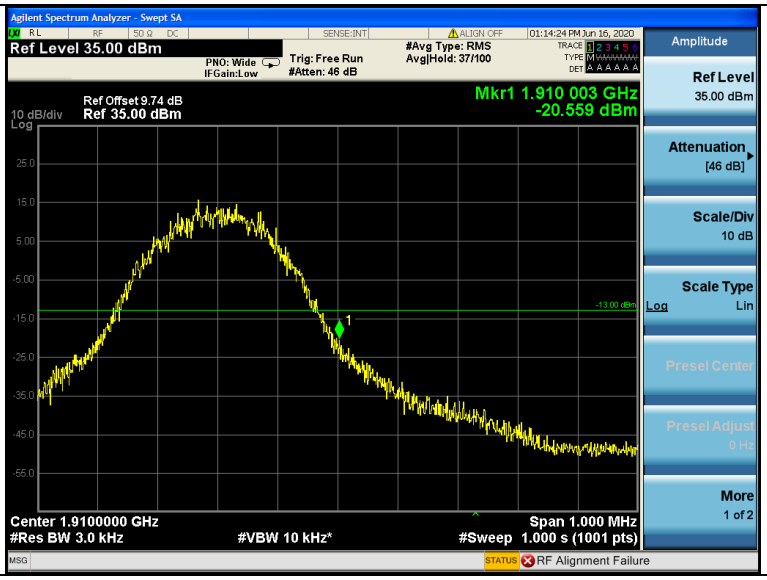
GPRS1900-512



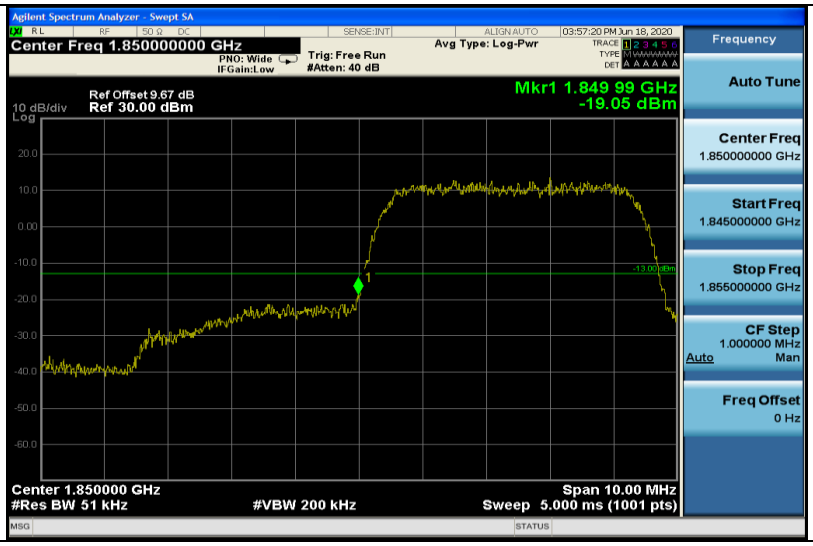
GPRS1900-810

EGPRS1900-512

EGPRS1900-810

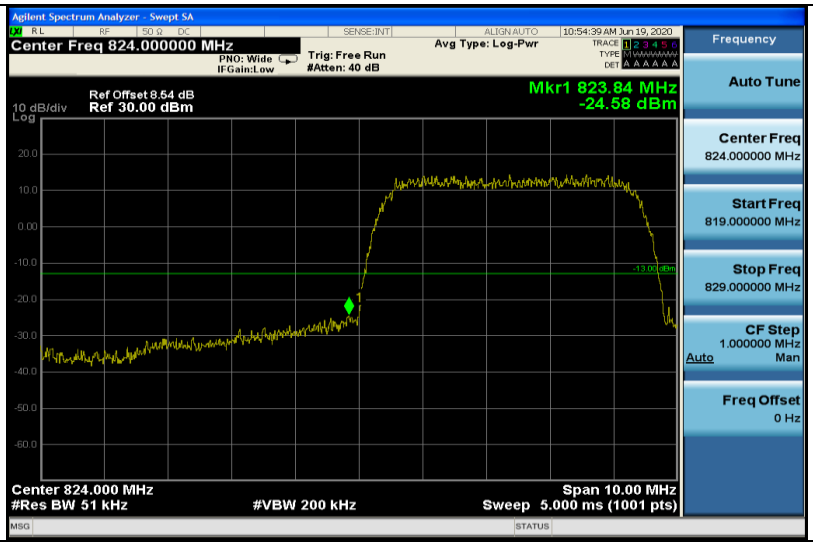


Band II-9262

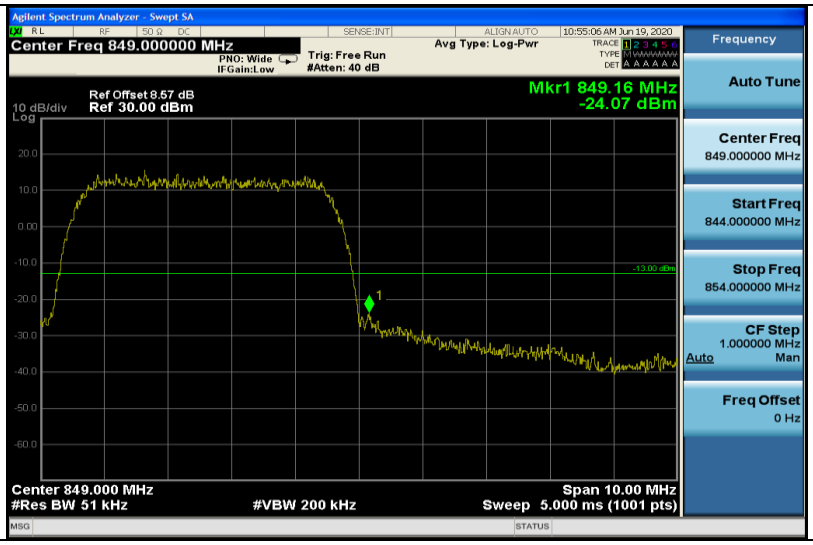


Band II-9538

Band V-4132



Band V-4233



Note: all modes of EUT have been tested; only the data of worst case mode is reported.

5.6 Radiated spurious emission

5.6.1 Limit

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+10log (P) dB

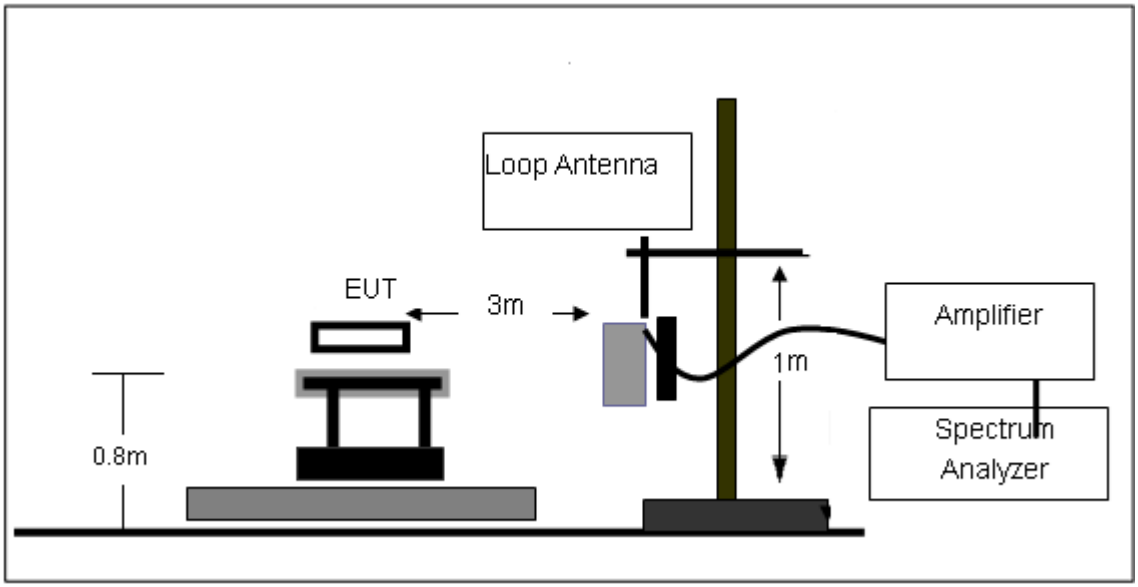
5.6.2 Test method

1. The test system setup as show in the block diagram above.
2. The EUT was placed on an non-conductive rotating platform in an anechoic chamber. The radiated spurious emissions from 30MHz to 10th harmonious of fundamental frequency were measured at 3 m with a test antenna and a spectrum analyzer with RBW=1 MHz, VBW=1 MHz, peak detector settings.
3. During the measurement, the EUT was enforced in maximum power and linked with a base station. All the spurious emissions at 3m were measured by rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. When found the maximum level of emissions from the EUT. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

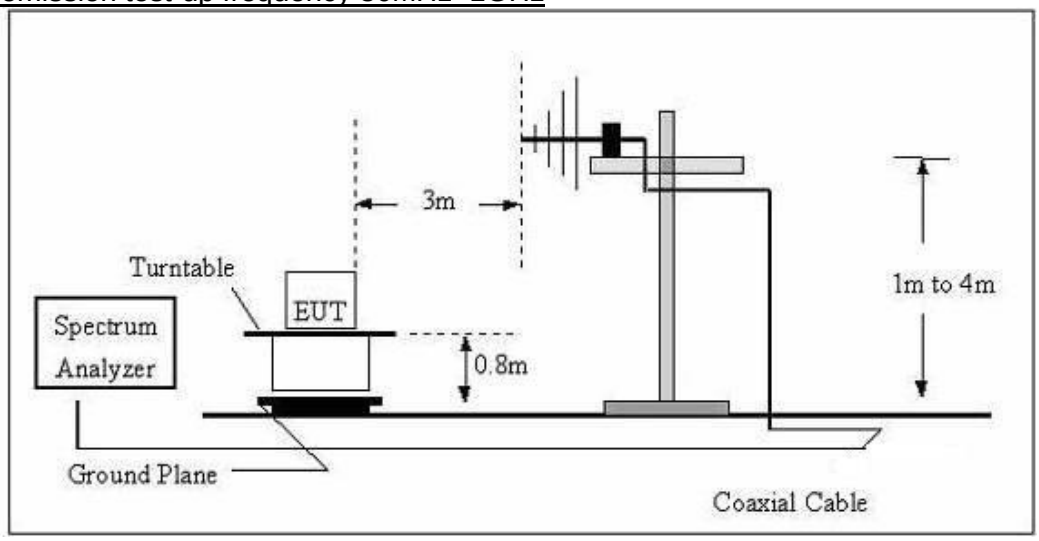
Spurious emissions in dB=10 log(TX power in Watts/0.001)-the absolute level
Spurious attenuation limit in dB=43+10 log(power out in Watts).

5.6.3 Test setup

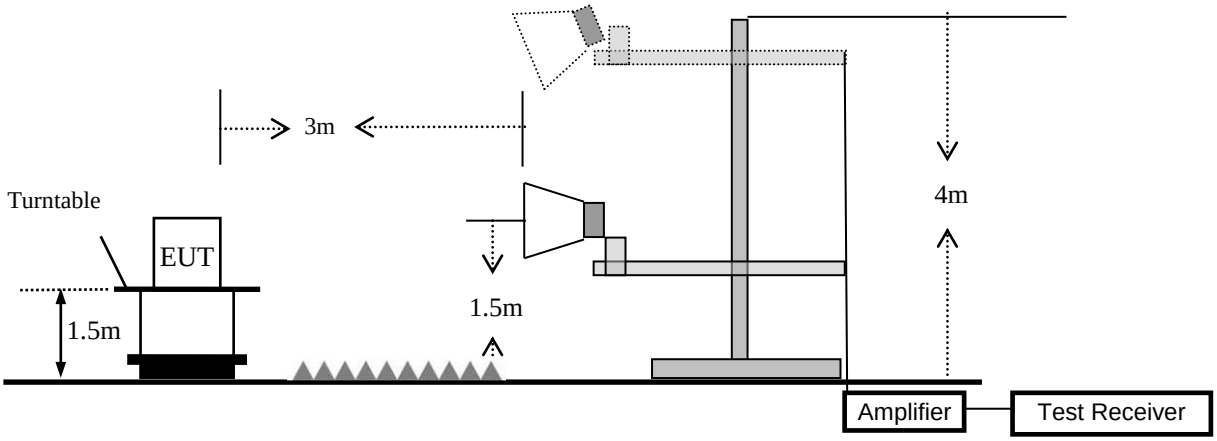
Radiated emission test-up frequency below 30MHz



Radiated emission test-up frequency 30MHz~1GHz



Radiated emission test-up frequency above 1GHz



5.6.4 Test Result

Note: All the configuration was tested and only the worse case was reported

For GPRS 850

GPRS850_ Low Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
214.2	-54.93	0.44	5.5	-49.87	-13	-36.87	H
497.5	-54.30	0.45	5.9	-48.85	-13	-35.85	H
1648.4	-41.51	5.98	9.11	-38.38	-13	-25.38	H
2472.6	-46.11	6.84	9.56	-43.39	-13	-30.39	H
257.9	-54.35	0.44	5.5	-49.29	-13	-36.29	V
398.3	-54.02	0.45	5.9	-48.57	-13	-35.57	V
1648.4	-36.92	5.98	9.11	-33.79	-13	-20.79	V
2472.6	-41.96	6.84	9.56	-39.24	-13	-26.24	V
GSM850_ Middle Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
217.9	-54.06	0.44	5.5	-49.00	-13	-36.00	H
367.6	-54.42	0.45	5.9	-48.97	-13	-35.97	H
1673.2	-39.68	5.98	9.11	-36.55	-13	-23.55	H
2509.8	-42.03	6.84	9.56	-39.31	-13	-26.31	H
217.9	-54.80	0.44	5.5	-49.74	-13	-36.74	V
393.3	-54.85	0.45	5.9	-49.40	-13	-36.40	V
1673.2	-35.07	5.98	9.11	-31.94	-13	-18.94	V
2509.8	-37.68	6.84	9.56	-34.96	-13	-21.96	V
GSM850_ High Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
209.6	-55.23	0.44	5.5	-50.17	-13	-37.17	H
347.1	-53.94	0.45	5.9	-48.49	-13	-35.49	H
1697.6	-45.66	5.98	9.11	-42.53	-13	-29.53	H
2546.4	-50.26	6.84	9.56	-47.54	-13	-34.54	H
217.9	-54.25	0.44	5.5	-49.19	-13	-36.19	V
396.7	-54.11	0.45	5.9	-48.66	-13	-35.66	V
1697.6	-41.51	5.98	9.11	-38.38	-13	-25.38	V
2546.4	-45.4	6.84	9.56	-42.68	-13	-29.68	V

For EGPRS 850

EGPRS850_ Low Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
214.2	-54.71	0.44	5.5	-49.65	-13	-36.65	H
497.5	-54.55	0.45	5.9	-49.10	-13	-36.10	H
1648.4	-42.03	5.98	9.11	-38.90	-13	-25.90	H
2472.6	-45.89	6.84	9.56	-43.17	-13	-30.17	H
257.9	-54.39	0.44	5.5	-49.33	-13	-36.33	V
398.3	-54.00	0.45	5.9	-48.55	-13	-35.55	V
1648.4	-37.43	5.98	9.11	-34.30	-13	-21.30	V
2472.6	-42.23	6.84	9.56	-39.51	-13	-26.51	V
GSM850_ Middle Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
217.9	-54.66	0.44	5.5	-49.60	-13	-36.60	H
367.6	-54.02	0.45	5.9	-48.57	-13	-35.57	H
1673.2	-39.68	5.98	9.11	-36.55	-13	-23.55	H
2509.8	-42.03	6.84	9.56	-39.31	-13	-26.31	H
217.9	-54.73	0.44	5.5	-49.67	-13	-36.67	V
393.3	-53.87	0.45	5.9	-48.42	-13	-35.42	V
1673.2	-35.07	5.98	9.11	-31.94	-13	-18.94	V
2509.8	-37.68	6.84	9.56	-34.96	-13	-21.96	V
GSM850_ High Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
209.6	-55.09	0.44	5.5	-50.03	-13	-37.03	H
347.1	-54.49	0.45	5.9	-49.04	-13	-36.04	H
1697.6	-45.66	5.98	9.11	-42.53	-13	-29.53	H
2546.4	-50.26	6.84	9.56	-47.54	-13	-34.54	H
217.9	-54.32	0.44	5.5	-49.26	-13	-36.26	V
396.7	-54.25	0.45	5.9	-48.80	-13	-35.80	V
1697.6	-41.51	5.98	9.11	-38.38	-13	-25.38	V
2546.4	-45.4	6.84	9.56	-42.68	-13	-29.68	V

For GPRS 1900

GPR1900_ Low Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
351.6	-55.57	0.44	5.5	-50.51	-13	-37.51	H
536.1	-53.90	0.45	5.9	-48.45	-13	-35.45	H
3700.4	-42.56	5.26	9.88	-37.94	-13	-24.94	H
5550.6	-46.98	6.11	11.36	-41.73	-13	-28.73	H
351.6	-55.68	0.44	5.5	-50.62	-13	-37.62	V
536.1	-54.55	0.45	5.9	-49.10	-13	-36.10	V
3700.4	-44.85	5.26	9.88	-40.23	-13	-27.23	V
5550.6	-49.21	6.11	11.36	-43.96	-13	-30.96	V
GSM1900_ Middle Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
351.6	-55.91	0.44	5.5	-50.85	-13	-37.85	H
536.1	-53.81	0.45	5.9	-48.36	-13	-35.36	H
3760	-40.16	5.26	9.88	-35.54	-13	-22.54	H
5640	-43.97	6.11	11.36	-38.72	-13	-25.72	H
351.6	-55.45	0.44	5.5	-50.39	-13	-37.39	V
536.1	-53.88	0.45	5.9	-48.43	-13	-35.43	V
3760	-42.42	5.26	9.88	-37.80	-13	-24.80	V
5640	-46.93	6.11	11.36	-41.68	-13	-28.68	V
GSM1900_ High Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
351.6	-55.74	0.44	5.5	-50.68	-13	-37.68	H
536.1	-54.28	0.45	5.9	-48.83	-13	-35.83	H
3819.6	-45.99	5.26	9.88	-41.37	-13	-28.37	H
5729.4	-48.88	6.11	11.36	-43.63	-13	-30.63	H
351.6	-55.40	0.44	5.5	-50.34	-13	-37.34	V
536.1	-54.16	0.45	5.9	-48.71	-13	-35.71	V
3819.6	-48.90	5.26	9.88	-44.28	-13	-31.28	V
5729.4	-47.83	6.11	11.36	-42.58	-13	-29.58	V

For EGPRS 1900

EGPR1900_ Low Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
351.6	-55.33	0.44	5.5	-50.27	-13	-37.27	H
536.1	-54.69	0.45	5.9	-49.24	-13	-36.24	H
3700.4	-42.73	5.26	9.88	-38.11	-13	-25.11	H
5550.6	-46.82	6.11	11.36	-41.57	-13	-28.57	H
351.6	-55.19	0.44	5.5	-50.13	-13	-37.13	V
536.1	-54.15	0.45	5.9	-48.70	-13	-35.70	V
3700.4	-44.71	5.26	9.88	-40.09	-13	-27.09	V
5550.6	-48.55	6.11	11.36	-43.30	-13	-30.30	V
GSM1900_ Middle Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
351.6	-55.19	0.44	5.5	-50.13	-13	-37.13	H
536.1	-54.62	0.45	5.9	-49.17	-13	-36.17	H
3760	-39.60	5.26	9.88	-34.98	-13	-21.98	H
5640	-44.42	6.11	11.36	-39.17	-13	-26.17	H
351.6	-55.35	0.44	5.5	-50.29	-13	-37.29	V
536.1	-54.12	0.45	5.9	-48.67	-13	-35.67	V
3760	-42.93	5.26	9.88	-38.31	-13	-25.31	V
5640	-46.63	6.11	11.36	-41.38	-13	-28.38	V
GSM1900_ High Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
351.6	-55.39	0.44	5.5	-50.33	-13	-37.33	H
536.1	-54.39	0.45	5.9	-48.94	-13	-35.94	H
3819.6	-46.71	5.26	9.88	-42.09	-13	-29.09	H
5729.4	-48.52	6.11	11.36	-43.27	-13	-30.27	H
351.6	-55.15	0.44	5.5	-50.09	-13	-37.09	V
536.1	-54.67	0.45	5.9	-49.22	-13	-36.22	V
3819.6	-49.15	5.26	9.88	-44.53	-13	-31.53	V
5729.4	-47.82	6.11	11.36	-42.57	-13	-29.57	V

For Band II (30MHz – 26.5GHz)

WCDMA Band II _ Low Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
257.9	-54.13	0.44	5.5	-49.07	-13	-36.07	H
398.3	-53.94	0.45	5.9	-48.49	-13	-35.49	H
3704.8	-44.68	5.26	9.88	-40.06	-13	-27.06	H
5557.2	-48.96	6.11	11.36	-43.71	-13	-30.71	H
257.3	-53.87	0.44	5.5	-48.81	-13	-35.81	V
398.7	-54.14	0.45	5.9	-48.69	-13	-35.69	V
3704.8	-50.19	5.26	9.88	-45.57	-13	-32.57	V
5557.2	-55.54	6.11	11.36	-50.29	-13	-37.29	V
WCDMA Band II _ Middle Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
217.4	-53.41	0.44	5.5	-48.35	-13	-35.35	H
378.9	-55.68	0.45	5.9	-50.23	-13	-37.23	H
3760	-38.97	5.32	10.03	-34.26	-13	-21.26	H
5640	-47.49	6.19	11.41	-42.27	-13	-29.27	H
217.4	-53.55	0.44	5.5	-48.49	-13	-35.49	V
378.9	-53.98	0.45	5.9	-48.53	-13	-35.53	V
3760	-46.79	5.32	10.03	-42.08	-13	-29.08	V
5640	-53.97	6.19	11.41	-48.75	-13	-35.75	V
WCDMA Band II _ High Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
257.9	-54.11	0.44	5.5	-49.05	-13	-36.05	H
398.3	-54.30	0.45	5.9	-48.85	-13	-35.85	H
3815.2	-49.42	5.36	9.62	-45.16	-13	-32.16	H
5722.8	-53.71	6.24	11.46	-48.49	-13	-35.49	H
257.3	-53.63	0.44	5.5	-48.57	-13	-35.57	V
398.7	-53.29	0.45	5.9	-47.84	-13	-34.84	V
3815.2	-53.36	5.36	9.62	-49.10	-13	-36.10	V
5722.8	-57.09	6.24	11.46	-51.87	-13	-38.87	V

For Band V (30MHz – 26.5GHz)

WCDMA Band V _ Low Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
257.9	-54.06	0.44	5.5	-49.00	-13	-36.00	H
398.3	-53.98	0.45	5.9	-48.53	-13	-35.53	H
1652.8	-46.70	3.86	8.56	-42.00	-13	-29.00	H
2479.2	-47.97	4.29	6.98	-45.28	-13	-32.28	H
257.3	-53.77	0.44	5.5	-48.71	-13	-35.71	V
398.7	-53.32	0.45	5.9	-47.87	-13	-34.87	V
1652.8	-42.03	3.86	8.56	-37.33	-13	-24.33	V
2479.2	-41.21	4.29	6.98	-38.52	-13	-25.52	V
WCDMA Band V _ Middle Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
257.9	-54.62	0.44	5.5	-49.56	-13	-36.56	H
398.3	-54.08	0.45	5.9	-48.63	-13	-35.63	H
1672.8	-43.88	3.9	8.58	-39.20	-13	-26.20	H
2509.2	-44.39	4.32	6.8	-41.91	-13	-28.91	H
257.3	-54.24	0.44	5.5	-49.18	-13	-36.18	V
398.7	-53.41	0.45	5.9	-47.96	-13	-34.96	V
1672.8	-38.36	3.9	8.58	-33.68	-13	-20.68	V
2509.2	-42.45	4.32	6.8	-39.97	-13	-26.97	V
WCDMA Band V _ High Channel							
Frequency	SG Level	Cable Loss	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	H/V
257.9	-55.43	0.44	5.5	-50.37	-13	-37.37	H
398.3	-54.63	0.45	5.9	-49.18	-13	-36.18	H
1693.2	-47.28	3.91	9.06	-42.13	-13	-29.13	H
2539.8	-47.85	4.32	6.65	-45.52	-13	-32.52	H
257.3	-54.00	0.44	5.5	-48.94	-13	-35.94	V
398.7	-54.00	0.45	5.9	-48.55	-13	-35.55	V
1693.2	-43.65	3.91	9.06	-38.50	-13	-25.50	V
2539.8	-44.60	4.32	6.65	-42.27	-13	-29.27	V

5.7 Frequency stability

5.7.1 Limit

For FCC part 22.355: the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances 2.5ppm for mobile ≤ 3W condition.

For FCC part 24.235: The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

5.7.2 Test method

Test Procedures for Temperature Variation:

1, The EUT was set up in the thermal chamber and connected with the base station.
2, With power off, the temperature was decreased to -30℃ and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
3, With power off, the temperature was raised in 10℃ set up to 50℃ and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
4, measure the carrier frequency error.

Test Procedures for Voltage Variation:

1, The EUT was placed in a temperature chamber at 25±5℃ and connected with the base station.
2, Reduce the primary supply voltage to the battery operating end point.
3, measure the carrier frequency error.

5.7.3 Test Result

Frequency Error Against Voltage for GPRS850 band		
Voltage (V)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
3.5	22.28	0.0266
3.7	26.86	0.0321
4.2	19.96	0.0239

Frequency Error Against Temperature for GPRS 850 band		
Temperature (℃)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
-30	31.48	0.0376
-20	27.25	0.0326
-10	28.90	0.0345
0	24.16	0.0289
10	22.31	0.0267
20	22.79	0.0272
30	15.42	0.0184
40	24.41	0.0292
50	30.62	0.0366

Frequency Error Against Voltage for EGPRS850 band		
Voltage (V)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
3.5	26.29	0.0314
3.7	23.22	0.0278
4.2	34.59	0.0413

Frequency Error Against Temperature for EGPRS 850 band		
Temperature (℃)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
-30	33.06	0.0395
-20	29.51	0.0353
-10	27.07	0.0324
0	42.05	0.0503
10	27.57	0.0330
20	30.38	0.0363
30	26.23	0.0314
40	20.31	0.0243
50	24.97	0.0298

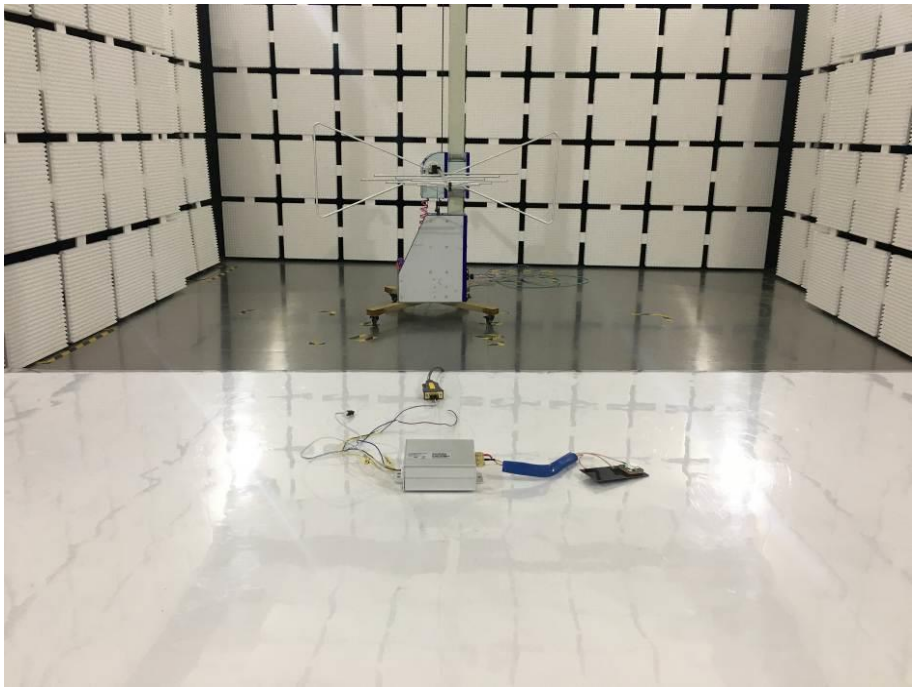
Frequency Error Against Voltage for GPRS1900 band		
Voltage (V)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
3.5	34.43	0.0183
3.7	28.34	0.0151
4.2	32.32	0.0172

Frequency Error Against Temperature for GPRS1900 band		
Temperature (℃)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
-30	34.69	0.0184
-20	30.14	0.0160
-10	28.18	0.0150
0	27.27	0.0145
10	23.58	0.0125
20	36.95	0.0197
30	28.50	0.0152
40	23.68	0.0126
50	15.84	0.0084

Frequency Error Against Voltage for EGPRS 1900 band		
Voltage (V)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
3.5	31.77	0.0169
3.7	21.01	0.0112
4.2	18.91	0.0101

Frequency Error Against Temperature for EGPRS1900 band		
Temperature (℃)	**Frequency Error (Hz)**	**Frequency Error (ppm)**
-30	32.81	0.0175
-20	27.03	0.0144
-10	24.24	0.0129
0	17.31	0.0092
10	23.99	0.0128
20	27.58	0.0147
30	35.19	0.0187
40	21.18	0.0113
50	17.65	0.0094

Photographs of the Test Setup

Radiated emission



Photographs of the EUT

See the APPENDIX 1: EUT PHOTO in the report No.: MTi20050902-3E1-1.

----END OF REPORT----