FCC TEST REPORT
FCC ID: 2A7FF-ADAPT-PIXEL

Product	:	Temperature Data loger
Model Name	:	KARTO G200,PIXEL C100,PIXEL C300,PIXEL W100, PIXEL W300
Brand	:	N/A
Report No.	:	PTC2307170220201E-FC02
Sample ID	:	PTC2307170220201E-FC02#
Prepared for		
Adapt Ideations Private Limited		
SY No 8 9,1/89/G/36,Shilpi Valley,Gafoor Nagar,Madhavapur Village,Ranga Reddy		
Prepared by		
Precise Testing & Certification Co., Ltd		
Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China		

TEST RESULT CERTIFICATION

Applicant's name	:	Adapt Ideations Private Limited
Address	:	SY No 8 9,1/89/G/36,Shilpi Valley,Gafoor Nagar,Madhavapur Village,Ranga Reddy
Manufacture's name	:	Adapt Ideations Private Limited
Address	:	SY No 8 9,1/89/G/36,Shilpi Valley,Gafoor Nagar,Madhavapur Village,Ranga Reddy
Product name	:	Temperature Data loger
Model name	:	KARTO G200,PIXEL C100,PIXEL C300,PIXEL W100, PIXEL W300
Standards	:	FCC Part 22 Subpart H
Test procedure	:	FCC Part 2 ANSI/TIA-603-E-2016 ANSI C63.26:2015 KDB 971168 D01 Power Meas License Digital Systems v03r01
Test Date	:	Sept. 05, 2023 to Oct. 19, 2023
Date of Issue	:	Nov. 03, 2023
Test Result	:	Pass

This device described above has been tested by PTC, and 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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Test Engineer:

Simon Pu / Engineer

Technical Manager:

Ronnie Liu / Manager

Contents

1 General description

1.1 Feature of equipment under test (EUT)

Product name:	Temperature Data loger
Model name:	KARTO G200,PIXEL C100,PIXEL C300,PIXEL W100, PIXEL W300
Difference in series models:	All the model are the same circuit and RF module, except the model No. and color.
Frequency range:	GSM850: TX824.2MHz~848.8MHz RX869.2MHz~893.8MHz;
Modulation type:	GMSK for GPRS; 8PSK for EGPRS
Power class:	Multi-Class12 Only 4 timeslots are used for GPRS
SIM card:	1 SIM Card socket
Antenna Type	PCB Antenna
Antenna gain:	2.3dBi
Battery:	Lion battery DC3.7V 8700mAh
Hardware version	Pixel_Gen_3
Software version	Pixel V1.1.0

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

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 Test conditions

During the measurement the environmental conditions were within the listed ranges:

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

1.5 Ancillary equipment list

Equipment	Model	S/N
Adapter	XSC-0502000SU Input:100-240V~, 0.4A, 50-60Hz Output ：DC 5V, 2A	/

2 Summary of Test Result

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

3 Test facilities and accreditations

3.1 Test laboratory

Precise Testing & Certification Co., Ltd

Address: Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China

FCC Registration Number: 790290

A2LA Certificate No.: 4408.01

IC Registration Number: 12191A

CAB identifier: CN0080

3.2 Environmental conditions

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

3.3 Measurement uncertainty

Parameter	**Uncertainty**
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(9kHz ~30MHz)	±3.15dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB

3.4 Test software

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

4 List of test equipment

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Date	Calibration period
EMI Test Receiver	Rohde&sch warz	ESPI7	100314	Aug. 17, 2023	1 Year
TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-872	Aug. 17, 2023	1 Year
amplifier	Hewlett-Packard	8447D	3113A06150	Aug. 17, 2023	1 Year
Single path vehicle AMN(LISN)	Schwarzbck	NNBM 8124	01175	Aug. 17, 2023	1 Year
Low noise active vertical monopole antenna	Schwarzbeck	VAMP 9243	#565	Aug. 17, 2023	1 Year
Biconical antenna	Schwarzbeck	BBA 9106	#164	Aug. 17, 2023	1 Year
MXG Vector Signal Generator	Agilent	N5182A	MY49060455	Aug. 17, 2023	1 Year
ESG Series Analog signal generator	Agilent	E4421B	GB40051240	Aug. 17, 2023	1 Year
Thermometer clock humidity monitor	-	HTC-1	/	Aug. 17, 2023	1 Year
Log Periodic Antenna	Schwarzbeck	VUSLP 9111B	#312	Aug. 17, 2023	1 Year
Log Periodic Dipole Array Antenna	ETS-LIND GREN	3148B	00224524	Aug. 17, 2023	1 Year
Amplifier	EMtrace	RP06A	00117	Aug. 17, 2023	1 Year
Comprehensive test instrument	Rohde&schwarz	CMW500	149155	Aug. 17, 2023	1 Year
PXA Signal Analyzer	Agilent	N9030A	MY51350296	Aug. 17, 2023	1 Year
EMI Test Receiver	Rohde&schwarz	ESIB26	100273	Aug. 17, 2023	1 Year
Synthesized Sweeper	Agilent	83752A	3610A01957	Aug. 17, 2023	1 Year
DC Power Supply	Agilent	E3632A	MY40027695	Aug. 17, 2023	1 Year
Artificial mains network	3ctest	LISN J50	ES391180 5	Aug. 17, 2023	1 Year
Power amplifier	Space-Dtro niccs	EWLNA0118G-P40	1852001	Aug. 17, 2023	1 Year
Current Probe	SOLAR ELECTRONICS CO.	9207-1	220095-1	Aug. 17, 2023	1 Year
Loop Sensor	SOLAR ELECTRONICS CO.	7334-1	220095-2	Aug. 17, 2023	1 Year
Temperature and humidity chamber	Shenzhen OJN Technology Co., Ltd.	OJN-9606-80L	15091810	Aug. 17, 2023	1 Year

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

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.

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	32.83	38.5	PASS
GPRS850	128	2	31.92	38.5	PASS
GPRS850	128	3	29.92	38.5	PASS
GPRS850	128	4	28.88	38.5	PASS
GPRS850	190	1	32.77	38.5	PASS
GPRS850	190	2	31.79	38.5	PASS
GPRS850	190	3	29.58	38.5	PASS
GPRS850	190	4	28.49	38.5	PASS
GPRS850	251	1	32.29	38.5	PASS
GPRS850	251	2	31.40	38.5	PASS
GPRS850	251	3	29.49	38.5	PASS
GPRS850	251	4	28.48	38.5	PASS

Band	Channel	Slot	Power(dBm)	Limit(dBm)	Verdict
EGPRS850	128	1	27.21	38.5	PASS
EGPRS850	128	2	26.11	38.5	PASS
EGPRS850	128	3	23.92	38.5	PASS
EGPRS850	128	4	22.86	38.5	PASS
EGPRS850	190	1	26.99	38.5	PASS
EGPRS850	190	2	25.85	38.5	PASS
EGPRS850	190	3	23.65	38.5	PASS
EGPRS850	190	4	22.57	38.5	PASS
EGPRS850	251	1	27.08	38.5	PASS
EGPRS850	251	2	25.97	38.5	PASS
EGPRS850	251	3	23.71	38.5	PASS
EGPRS850	251	4	22.62	38.5	PASS

For EIRP & ERP:

For GPRS 850

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	Correction	ERP	ERP
(MHz)		(dBm)	(dB)	(dB)	(dB)	(dBm)	(W)
824.2	H	24.97	0.39	3	2.15	25.43	0.3491
836.6	H	23.49	0.35	3	2.15	23.99	0.2506
848.8	H	25.37	0.32	3	2.15	25.90	0.3890
824.2	V	25.17	0.39	3	2.15	25.63	0.3656
836.6	V	25.25	0.35	3	2.15	25.75	0.3758
848.8	V	23.66	0.32	3	2.15	24.19	0.2624

For EGPRS 850

Frequency	Polarization	SG Level	Cable Loss	Antenna Gain	Correction	ERP	ERP
(MHz)		(dBm)	(dB)	(dB)	(dB)	(dBm)	(W)
824.2	H	18.96	0.39	3	2.15	19.42	0.0875
836.6	H	18.52	0.35	3	2.15	19.02	0.0798
848.8	H	19.19	0.32	3	2.15	19.72	0.0938
824.2	V	18.62	0.39	3	2.15	19.12	0.0817
836.6	V	18.89	0.35	3	2.15	19.39	0.0869
848.8	V	18.82	0.32	3	2.15	18.35	0.0684

Note: ERP = SG Level- Cable Loss + Antenna Gain – Correction
EIRP= SG Level- Cable Loss + Antenna Gain

5.2 Peak to average power ratio (PAPR)

5.2.1 Limit

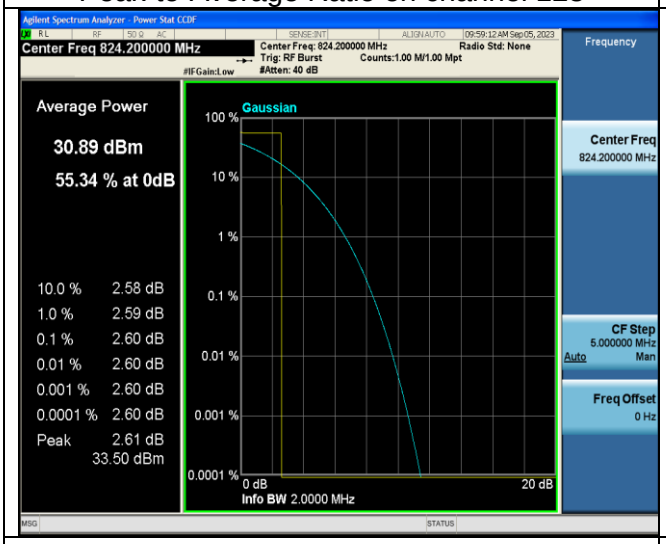
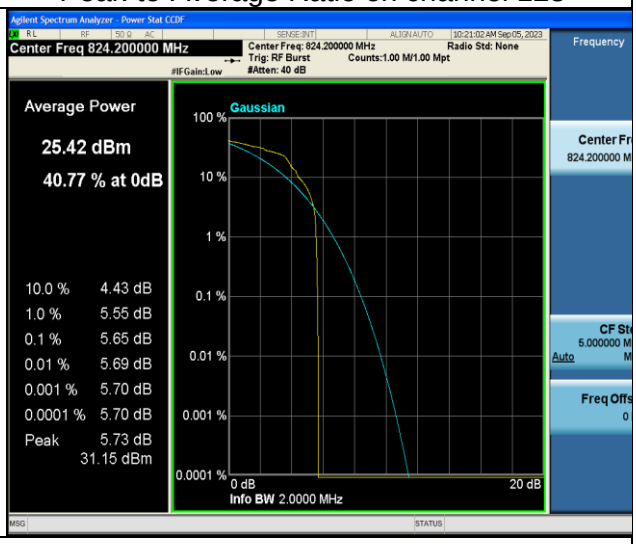
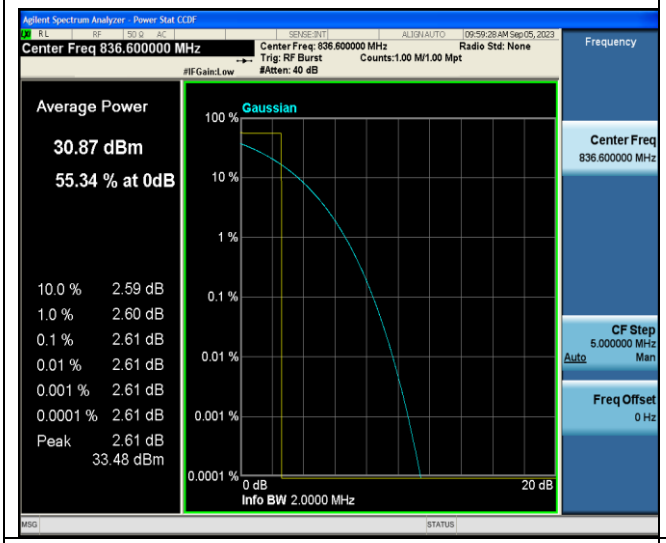
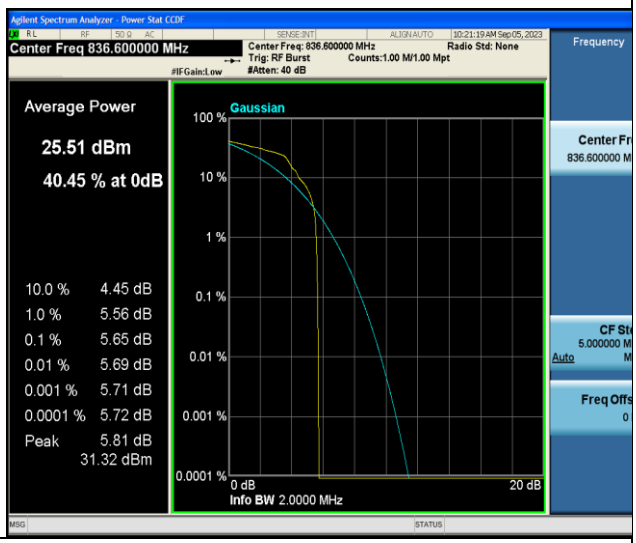
The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent 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.

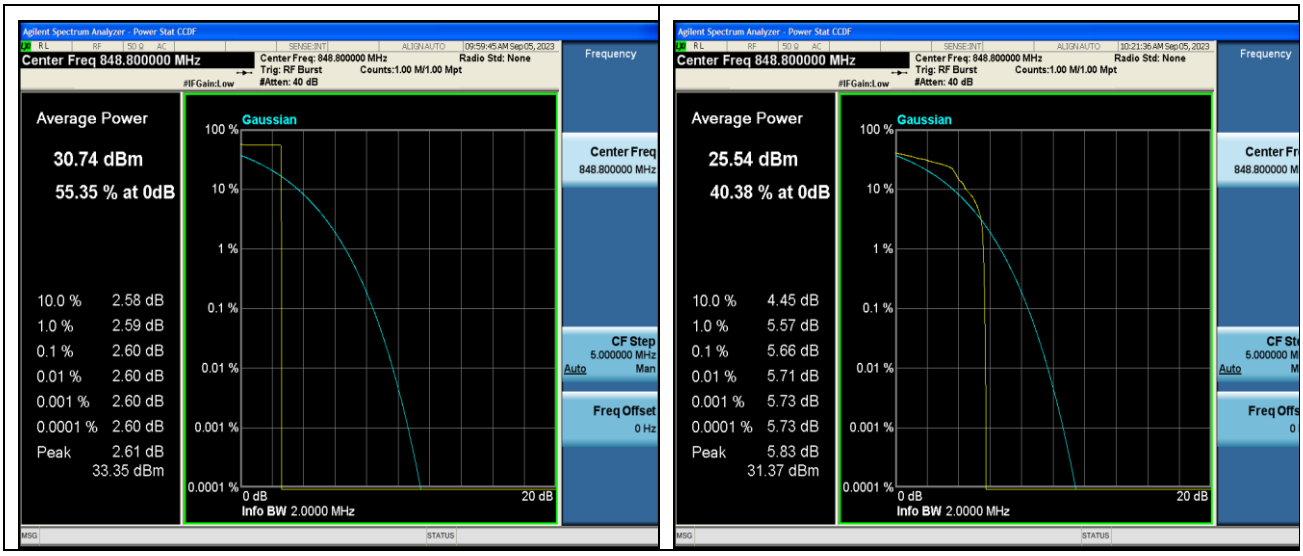
5.2.2 Test method

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

Band	Channel	Result(dB)	Limit(dB)	Verdict
GPRS850	128	2.6	13	PASS
GPRS850	190	2.61	13	PASS
GPRS850	251	2.6	13	PASS
EGPRS850	128	5.65	13	PASS
EGPRS850	190	5.65	13	PASS
EGPRS850	251	5.66	13	PASS

Test plot	
(GPRS850)	(EGPRS850)
Peak-to-Average Ratio on channel 128	Peak-to-Average Ratio on channel 128
	
Peak-to-Average Ratio on channel 190	Peak-to-Average Ratio on channel 190
	
Peak-to-Average Ratio on channel 251	Peak-to-Average Ratio on channel 251



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

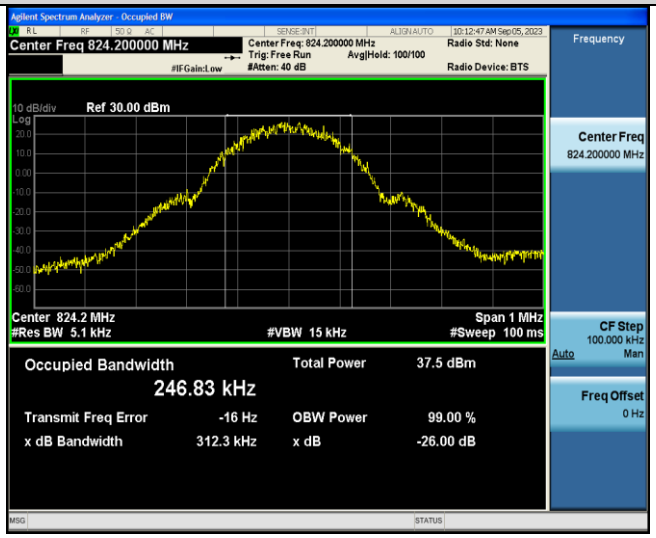
5.3 Occupied bandwidth

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 (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GPRS850	128	0.24683	0.3123	---	PASS
GPRS850	190	0.24323	0.3151	---	PASS
GPRS850	251	0.24569	0.3167	---	PASS
EGPRS850	128	0.24478	0.3064	---	PASS
EGPRS850	190	0.24080	0.3008	---	PASS
EGPRS850	251	0.24407	0.3097	---	PASS

GPRS850-128

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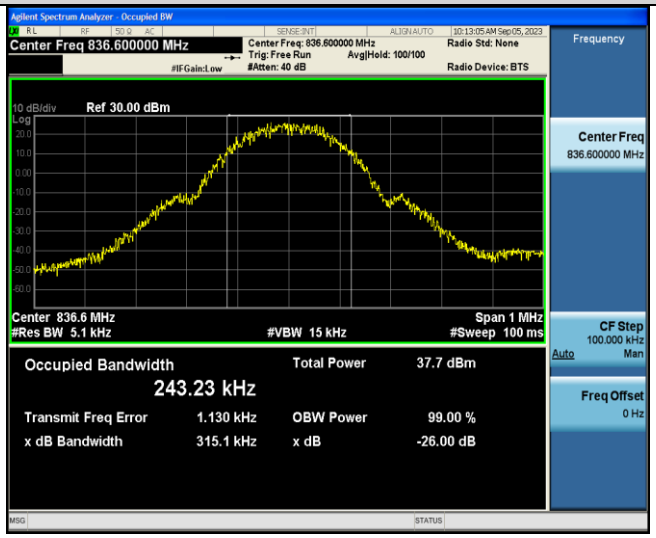
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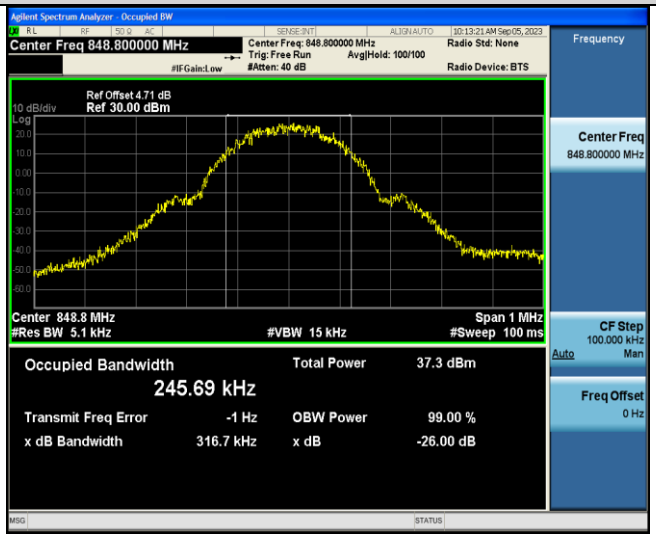

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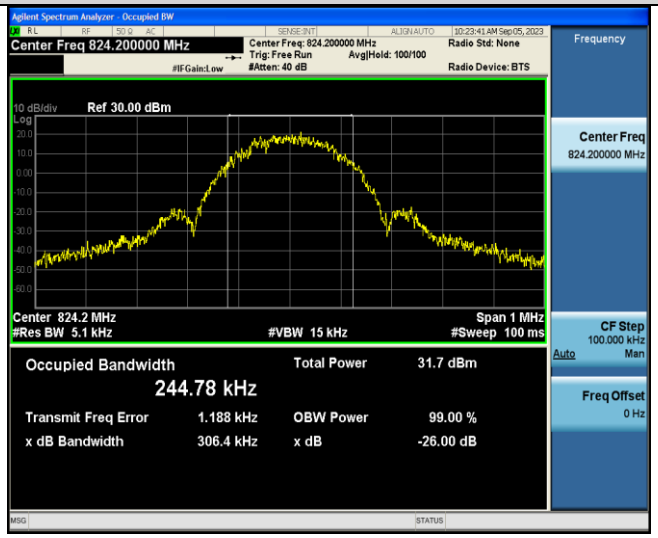
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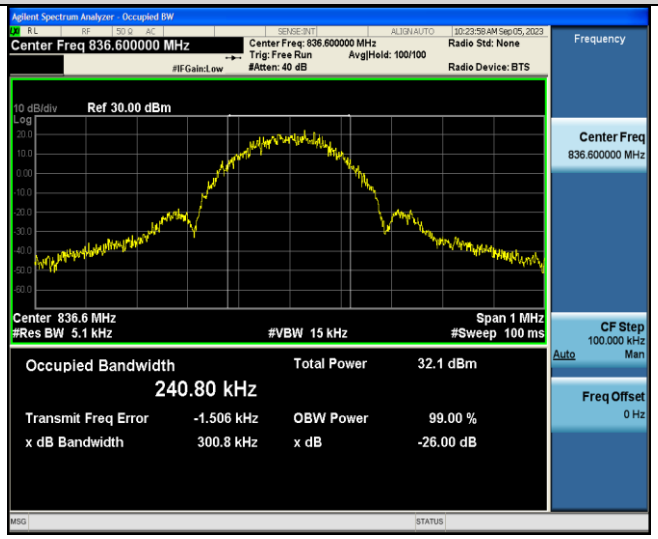
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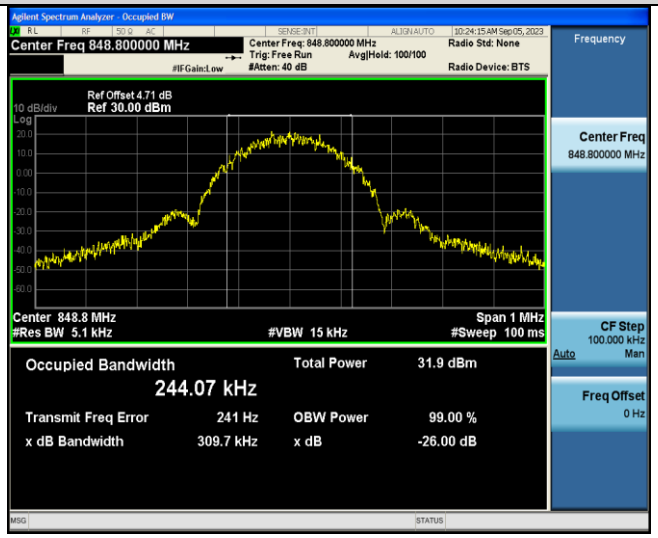


Note: all modes of EUT have been tested; only the data of worst case mode is report

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.

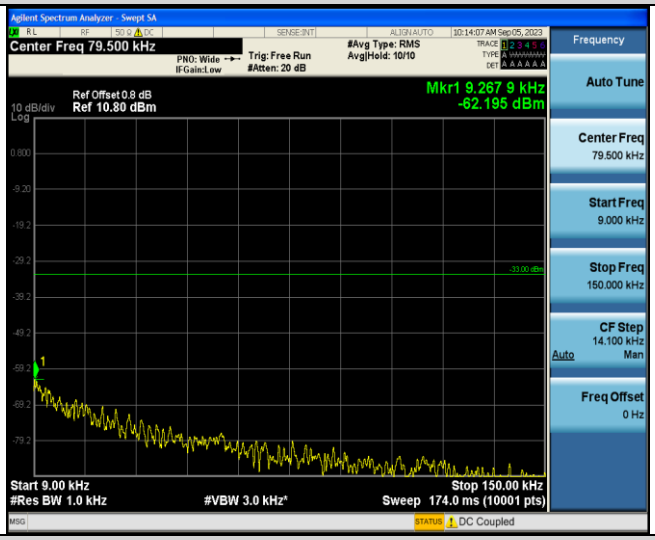
Frequency above 1 GHz: RBW=1 MHz, VBW=3 MHz.

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

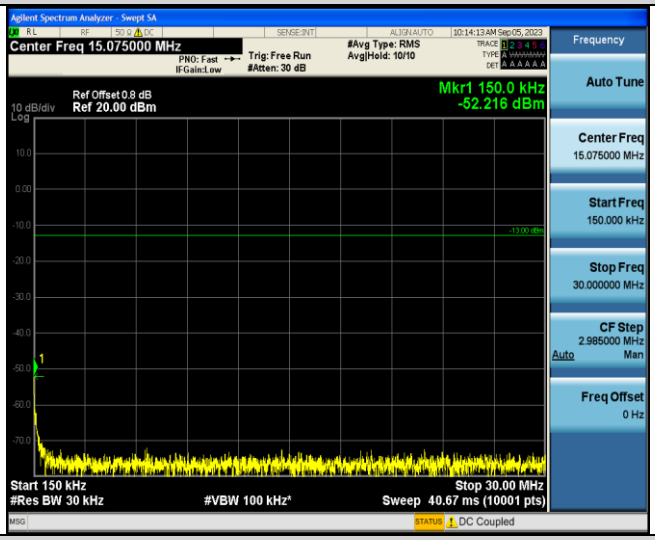
5.4.3 Test result

Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GPRS850	128	0.009~0.15MHz	0.01	-62.2	-33	PASS
GPRS850	128	0.15~30MHz	0.15	-52.22	-13	PASS
GPRS850	128	30~1000MHz	992.69	-55.2	-13	PASS
GPRS850	128	1000~10000MHz	3178.9	-48.78	-13	PASS
GPRS850	190	0.009~0.15MHz	0.01	-62.17	-33	PASS
GPRS850	190	0.15~30MHz	0.15	-52.5	-13	PASS
GPRS850	190	30~1000MHz	982.06	-55.94	-13	PASS
GPRS850	190	1000~10000MHz	1697.5	-48.65	-13	PASS
GPRS850	251	0.009~0.15MHz	0.01	-61.88	-33	PASS
GPRS850	251	0.15~30MHz	0.16	-53.54	-13	PASS
GPRS850	251	30~1000MHz	977.53	-55.26	-13	PASS
GPRS850	251	1000~10000MHz	3174.1	-48.8	-13	PASS
EGPRS850	128	0.009~0.15MHz	0.01	-64.33	-33	PASS
EGPRS850	128	0.15~30MHz	0.16	-55.49	-13	PASS
EGPRS850	128	30~1000MHz	186.43	-52.59	-13	PASS
EGPRS850	128	1000~10000MHz	3190.3	-48.79	-13	PASS
EGPRS850	190	0.009~0.15MHz	0.01	-65.99	-33	PASS
EGPRS850	190	0.15~30MHz	0.17	-54.94	-13	PASS
EGPRS850	190	30~1000MHz	184.42	-52.08	-13	PASS
EGPRS850	190	1000~10000MHz	3180.4	-48.82	-13	PASS
EGPRS850	251	0.009~0.15MHz	0.01	-65.44	-33	PASS
EGPRS850	251	0.15~30MHz	0.16	-53.57	-13	PASS
EGPRS850	251	30~1000MHz	175.5	-51.93	-13	PASS
EGPRS850	251	1000~10000MHz	3187	-48.87	-13	PASS

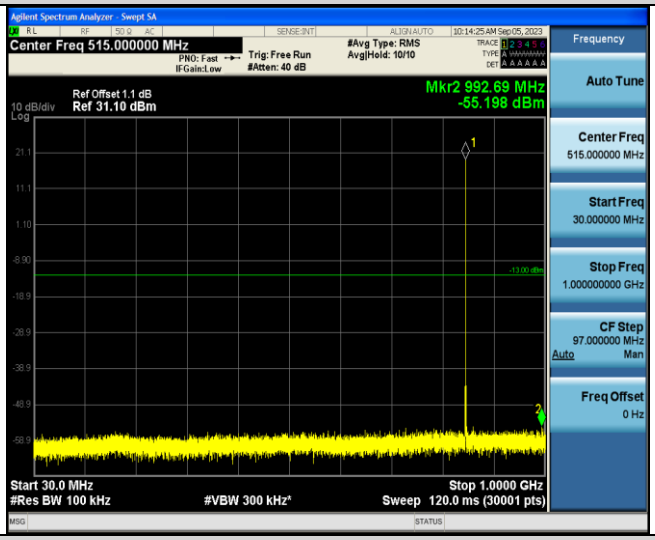
GPRS850-128-0.009~0.15MHz



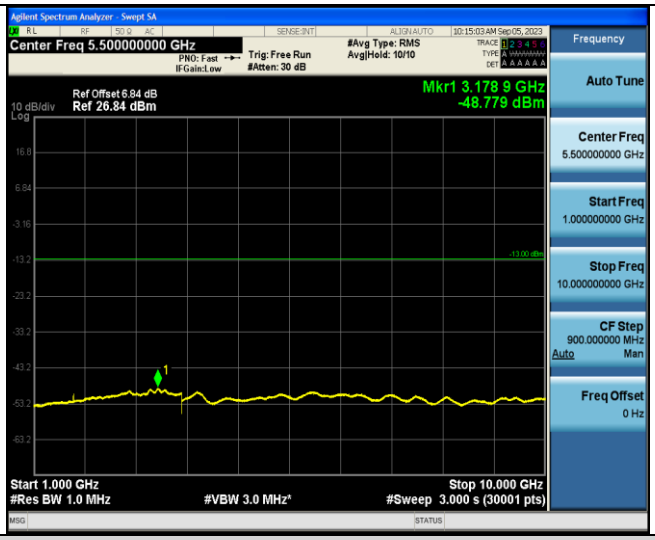
GPRS850-128-0.15~30MHz



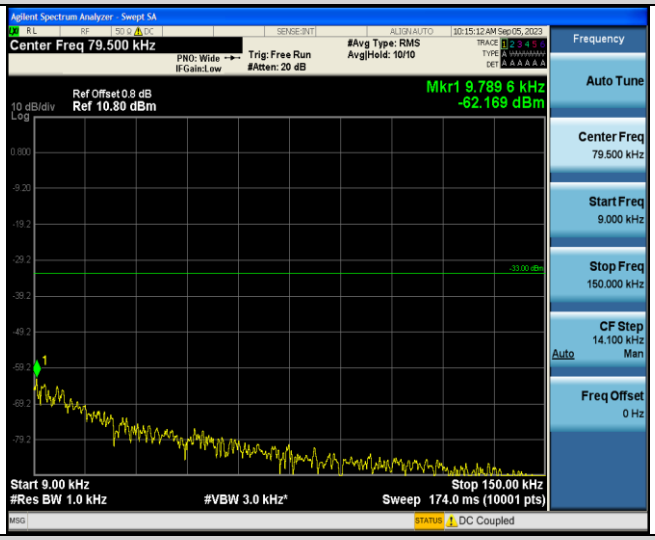
GPRS850-128-30~1000MHz



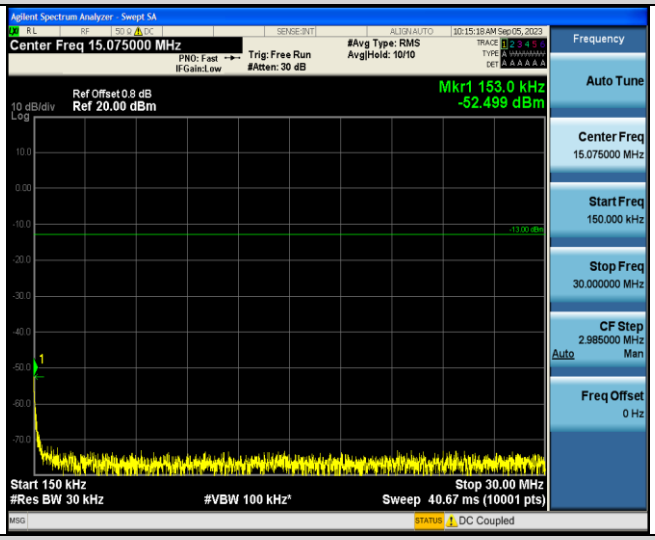
GPRS850-128-1000~10000MHz



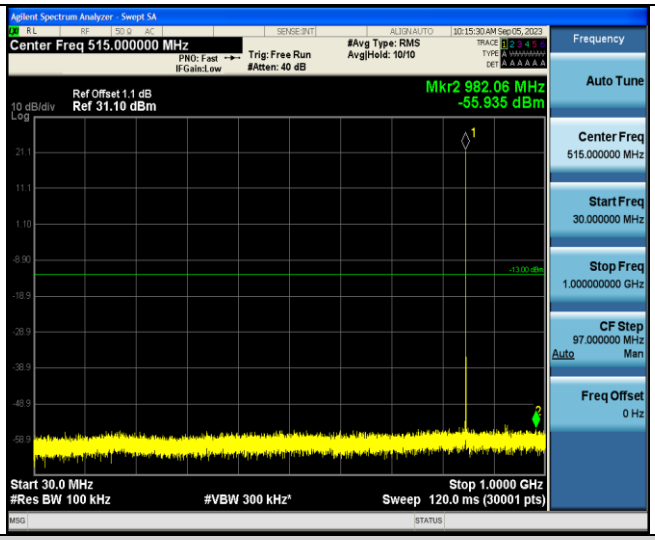
GPRS850-190-0.009~0.15MHz



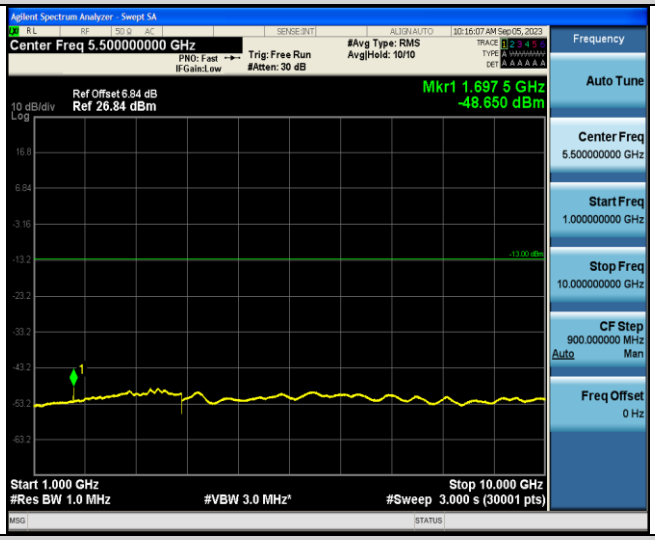
GPRS850-190-0.15~30MHz



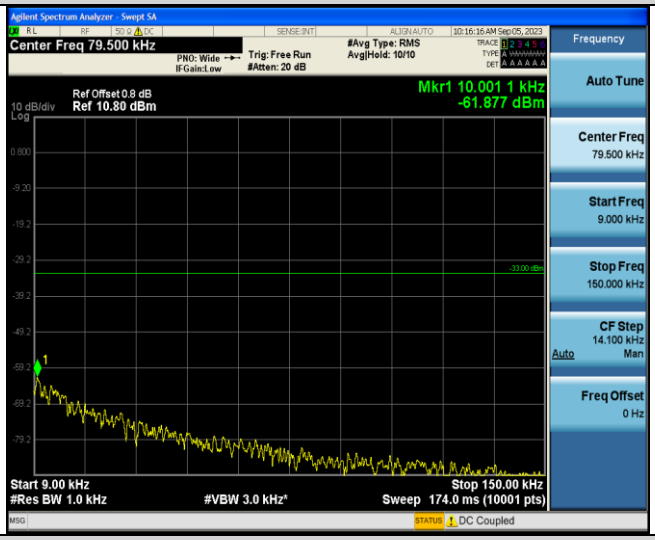
GPRS850-190-30~1000MHz



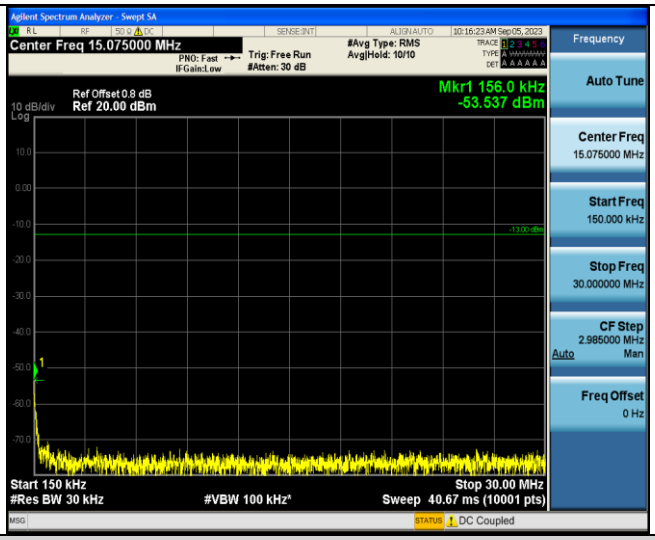
GPRS850-190-1000~10000MHz



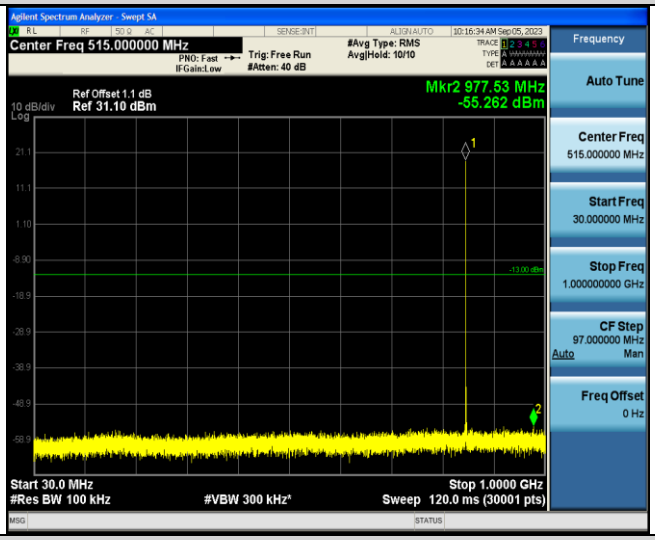
GPRS850-251-0.009~0.15MHz



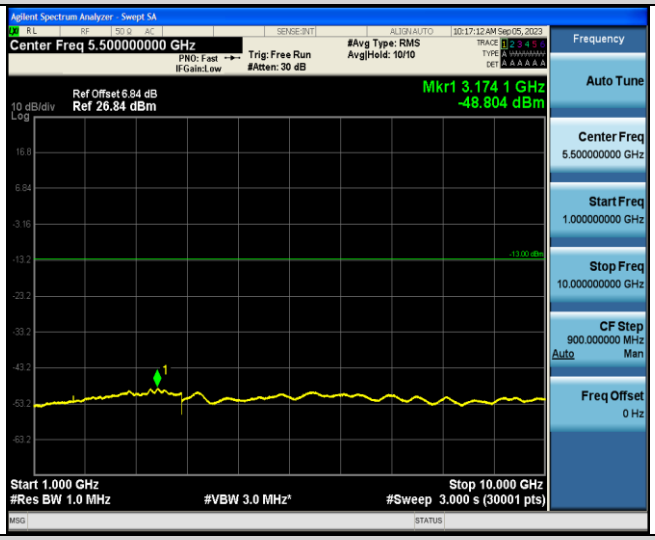
GPRS850-251-0.15~30MHz



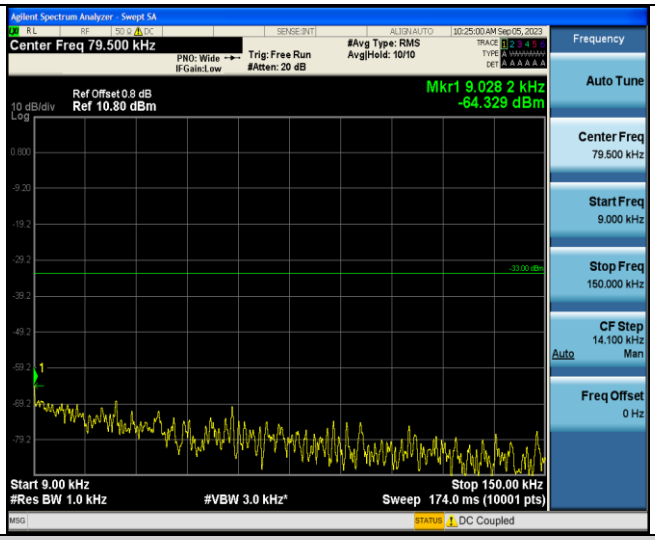
GPRS850-251-30~1000MHz



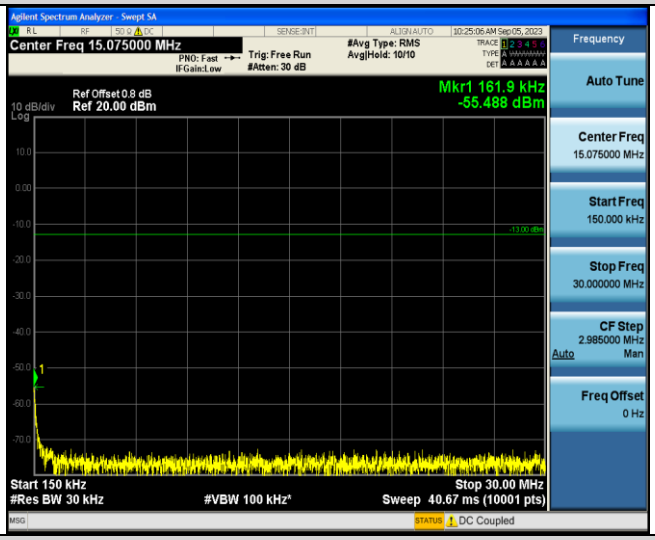
GPRS850-251-1000~10000MHz



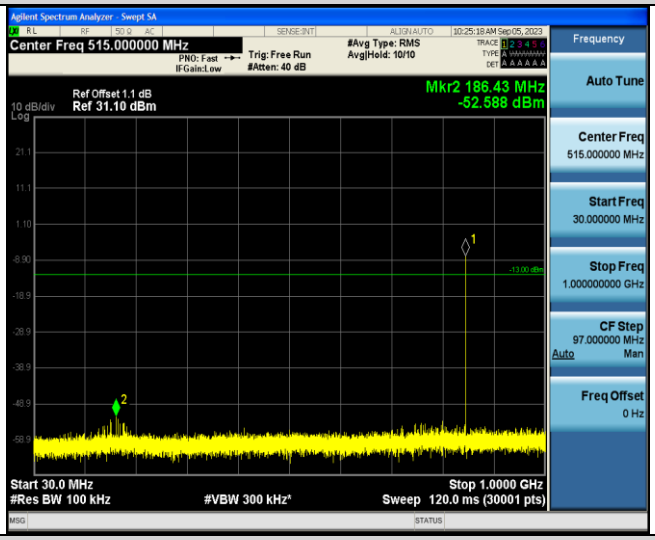
EGPRS850-128-0.009~0.15MHz



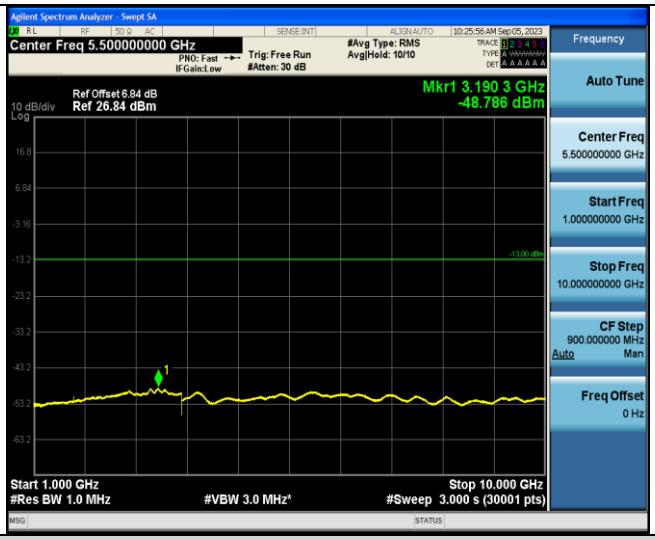
EGPRS850-128-0.15~30MHz



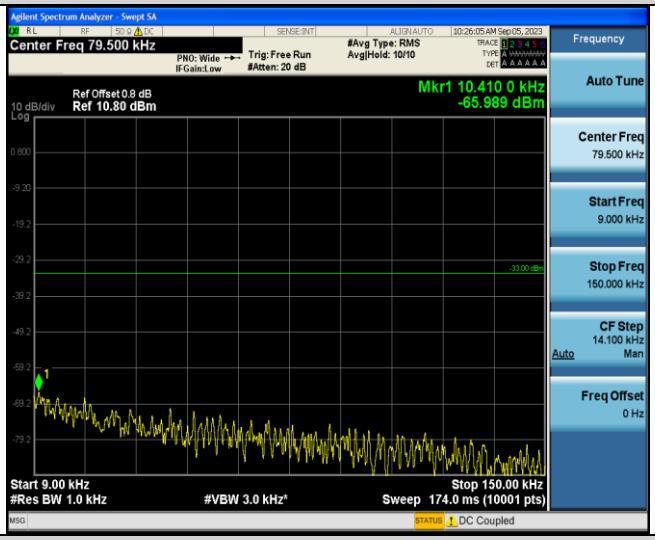
EGPRS850-128-30~1000MHz



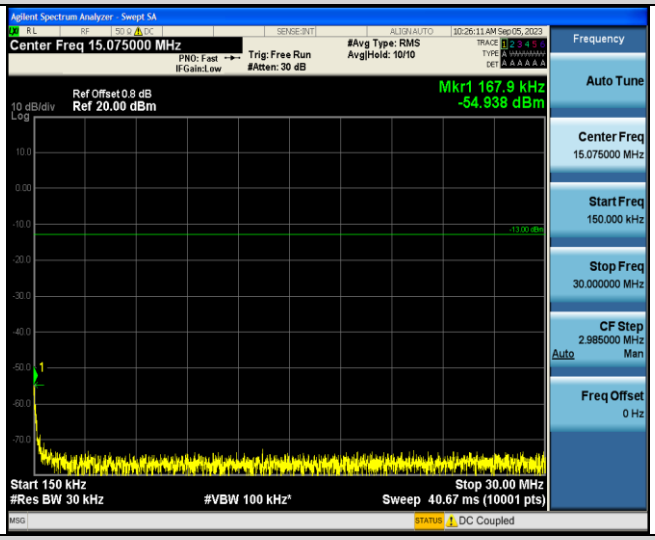
EGPRS850-128-1000~10000MHz



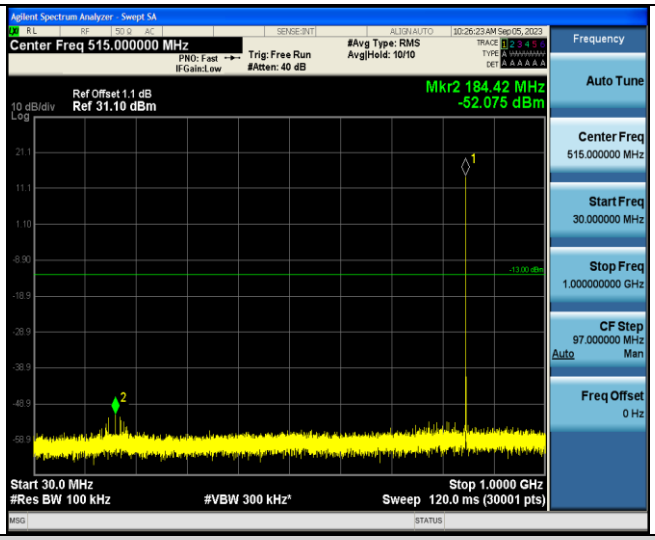
EGPRS850-190-0.009~0.15MHz



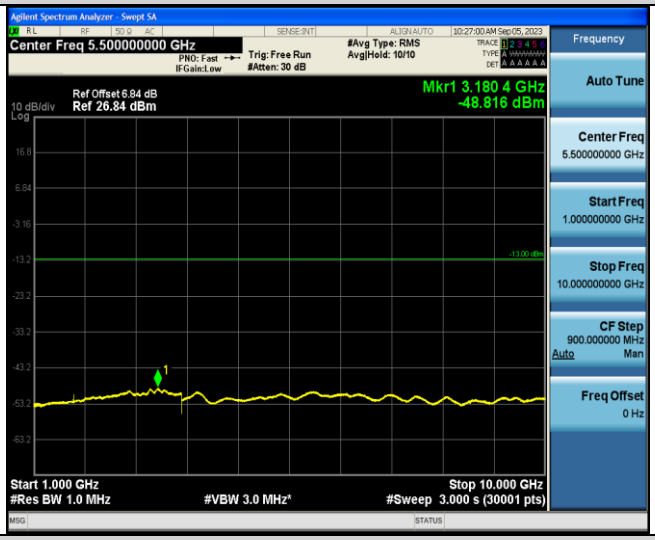
EGPRS850-190-0.15~30MHz



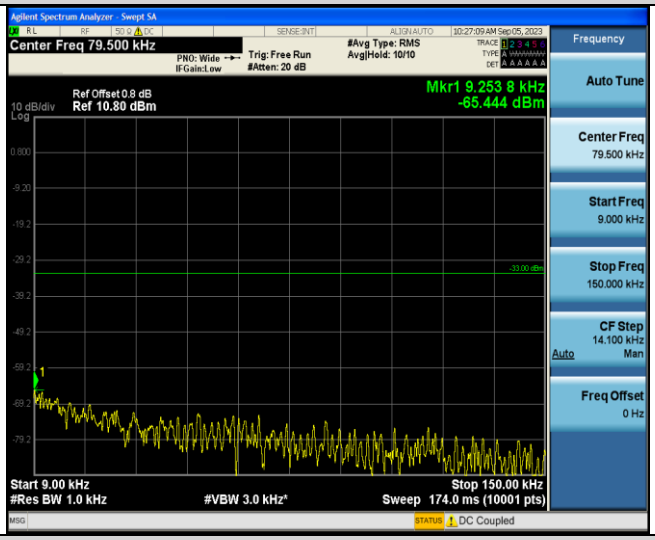
EGPRS850-190-30~1000MHz



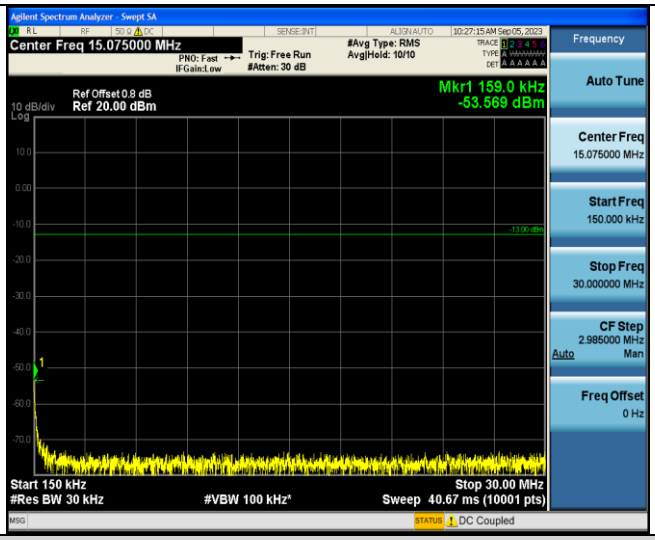
EGPRS850-190-1000~10000MHz



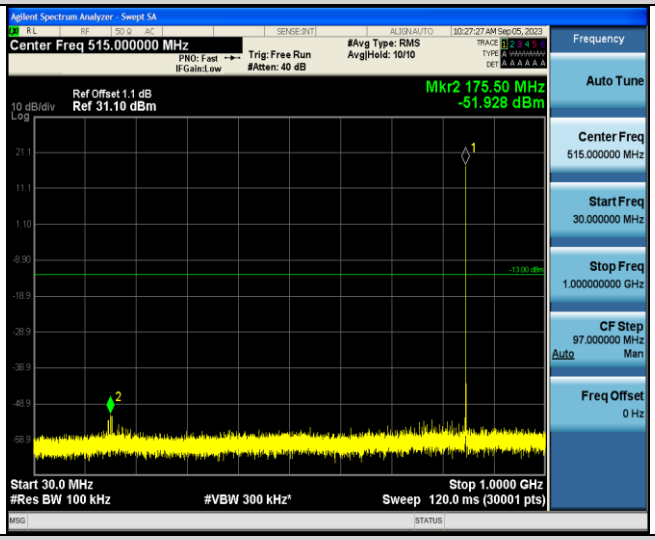
EGPRS850-251-0.009~0.15MHz



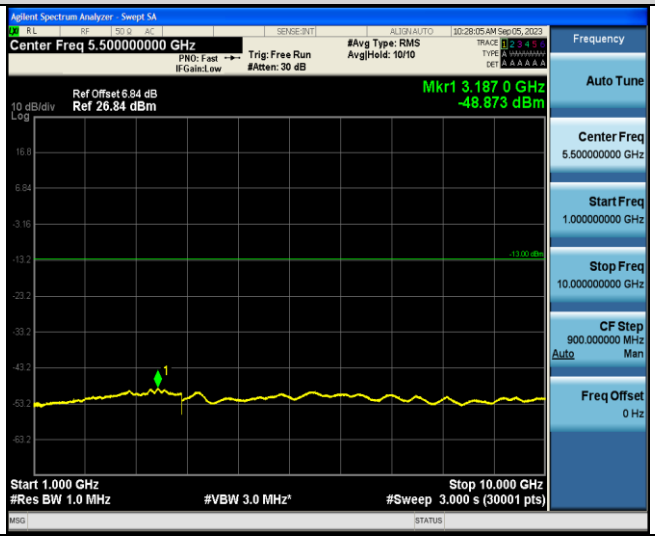
EGPRS850-251-0.15~30MHz



EGPRS850-251-30~1000MHz



EGPRS850-251-1000~10000MHz



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

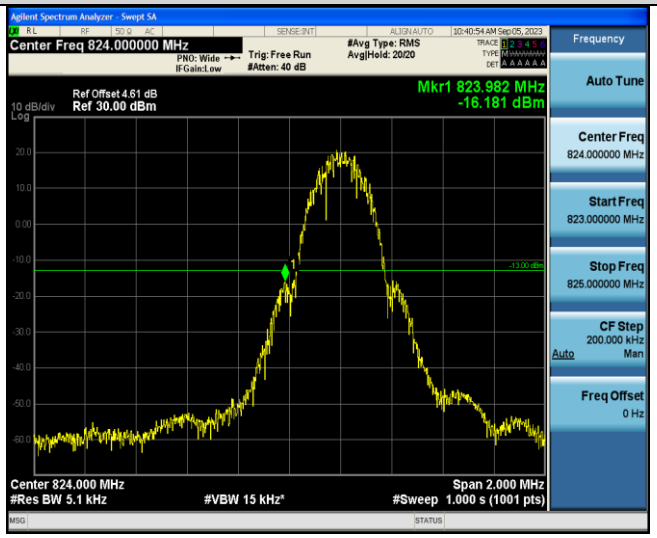
5.5.2 Test method

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.

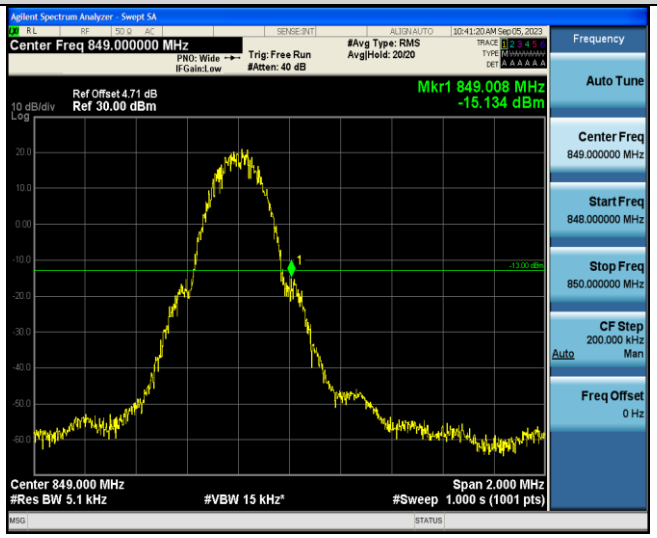
5.5.3 Test result

Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GPRS850	128	823.98	-16.18	-13	PASS
GPRS850	251	849.01	-15.13	-13	PASS
EGPRS850	128	823.99	-22.88	-13	PASS
EGPRS850	251	849.03	-24.53	-13	PASS

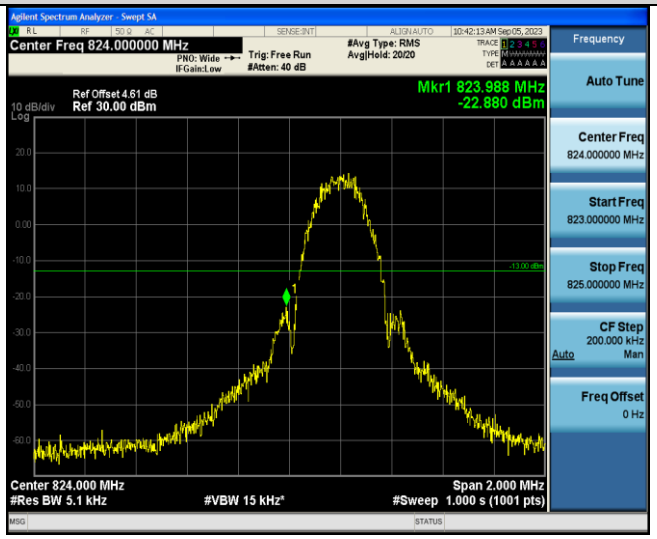
GPRS850-128

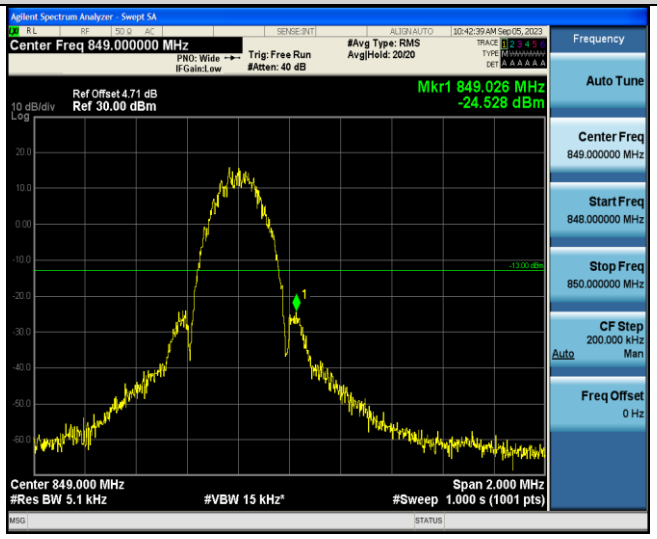


GPRS850-251



EGPRS850-128



EGPRS850-251


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

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

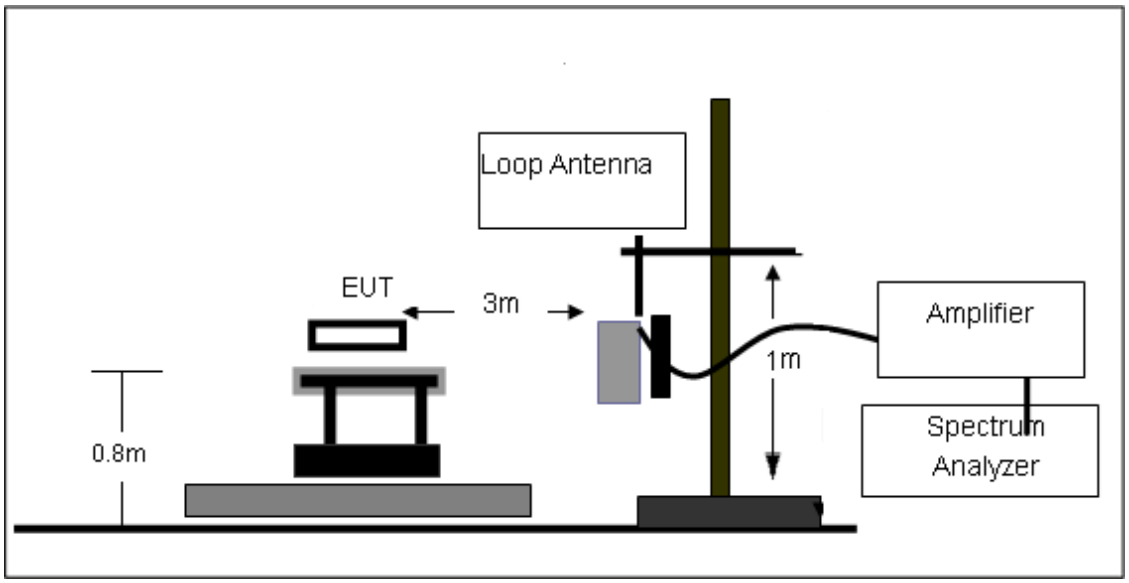
5.6.2 Test method

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.

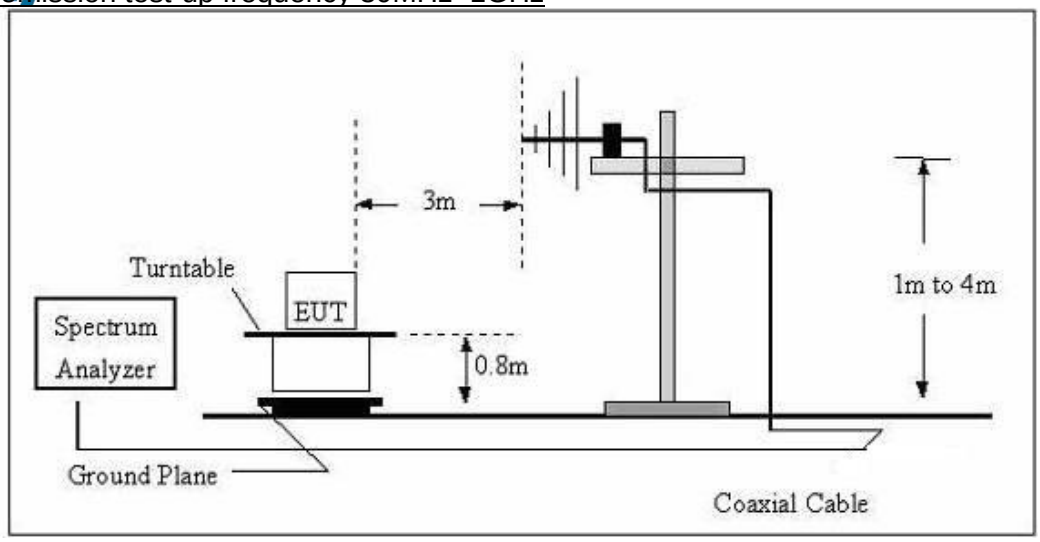
Spurious emissions in dB=10 log(TX power in Watts/0.001)-the absolute level
Spurious attenuation limit in dB=43+10 log(power out in Watts).

5.6.3 Test setup

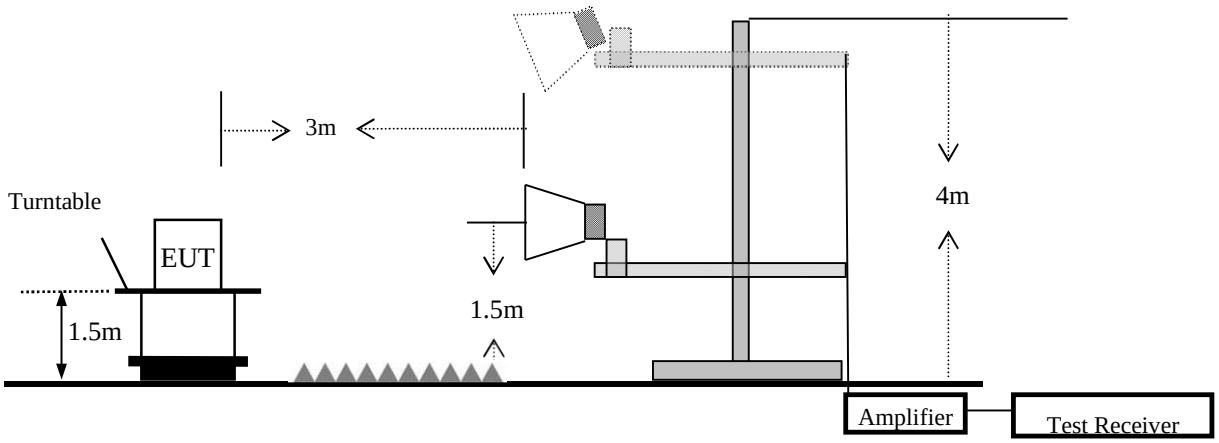
Radiated emission test-up frequency below 30MHz



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

GPRS850_ Low Channel								
Frequency	SG Level	Cable Loss	Diatance	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(m)	(dB)	(dBm)	(dBm)	(dB)	
1648.4	-48.84	3.86	3	8.56	-44.14	-13	-31.14	H
2472.6	-53.09	4.29	3	6.98	-50.40	-13	-37.40	H
1648.4	-44.76	3.86	3	8.56	-40.06	-13	-27.06	V
2472.6	-51.19	4.29	3	6.98	-48.50	-13	-35.50	V
GPRS850_ Middle Channel								
Frequency	SG Level	Cable Loss	Diatance	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(m)	(dB)	(dBm)	(dBm)	(dB)	
1673.2	-46.89	3.9	3	8.58	-42.21	-13	-29.21	H
2509.8	-51.90	4.32	3	6.8	-49.42	-13	-36.42	H
1673.2	-41.49	3.9	3	8.58	-36.81	-13	-23.81	V
2509.8	-48.59	4.32	3	6.8	-46.11	-13	-33.11	V
GPRS850_High Channel								
Frequency	SG Level	Cable Loss	Diatance	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(m)	(dB)	(dBm)	(dBm)	(dB)	
1697.6	-54.21	3.91	3	9.06	-49.06	-13	-36.06	H
2546.4	-54.72	4.32	3	6.65	-52.39	-13	-39.39	H
1697.6	-50.88	3.91	3	9.06	-45.73	-13	-32.73	V
2546.4	-51.67	4.32	3	6.65	-49.34	-13	-36.34	V

EGPRS850_ Low Channel								
Frequency	SG Level	Cable Loss	Diatance	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(m)	(dB)	(dBm)	(dBm)	(dB)	
1648.4	-52.14	3.86	3	8.56	-47.44	-13	-34.44	H
2472.6	-53.12	4.29	3	6.98	-50.43	-13	-37.43	H
1648.4	-48.81	3.86	3	8.56	-44.11	-13	-31.11	V
2472.6	-49.70	4.29	3	6.98	-47.01	-13	-34.01	V
EGPRS850_ Middle Channel								
Frequency	SG Level	Cable Loss	Diatance	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(m)	(dB)	(dBm)	(dBm)	(dB)	
1673.2	-51.84	3.9	3	8.58	-47.16	-13	-34.16	H
2509.8	-52.37	4.32	3	6.8	-49.89	-13	-36.89	H
1673.2	-48.91	3.9	3	8.58	-44.23	-13	-31.23	V
2509.8	-49.37	4.32	3	6.8	-46.89	-13	-33.89	V
EGPRS850_ High Channel								
Frequency	SG Level	Cable Loss	Diatance	Antenna Gain	Absolute Level	Limit	Margin	Polarization
(MHz)	(dBm)	(dB)	(m)	(dB)	(dBm)	(dBm)	(dB)	
1697.6	-52.41	3.91	3	9.06	-47.26	-13	-34.26	H
2546.4	-53.16	4.32	3	6.65	-50.83	-13	-37.83	H
1697.6	-48.85	3.91	3	9.06	-43.70	-13	-30.70	V
2546.4	-50.03	4.32	3	6.65	-47.70	-13	-34.70	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

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS850	128	VL	TN	12.37	0.015008	±2.5	PASS
GPRS850	128	VN	TN	16.82	0.020408	±2.5	PASS
GPRS850	128	VH	TN	12.91	0.015664	±2.5	PASS
GPRS850	190	VL	TN	15.01	0.017942	±2.5	PASS
GPRS850	190	VN	TN	9.43	0.011272	±2.5	PASS
GPRS850	190	VH	TN	8.75	0.010459	±2.5	PASS
GPRS850	251	VL	TN	12.53	0.014762	±2.5	PASS
GPRS850	251	VN	TN	17.31	0.020393	±2.5	PASS
GPRS850	251	VH	TN	14.21	0.016741	±2.5	PASS
EGPRS850	128	VL	NT	3.36	0.004077	±2.5	PASS
EGPRS850	128	VN	NT	4.75	0.005763	±2.5	PASS
EGPRS850	128	VH	NT	5.13	0.006224	±2.5	PASS
EGPRS850	190	VL	NT	5.97	0.007136	±2.5	PASS
EGPRS850	190	VN	NT	1.74	0.002080	±2.5	PASS
EGPRS850	190	VH	NT	7.78	0.009300	±2.5	PASS
EGPRS850	251	VL	NT	7.85	0.009248	±2.5	PASS
EGPRS850	251	VN	NT	4.10	0.004830	±2.5	PASS
EGPRS850	251	VH	NT	6.10	0.007187	±2.5	PASS

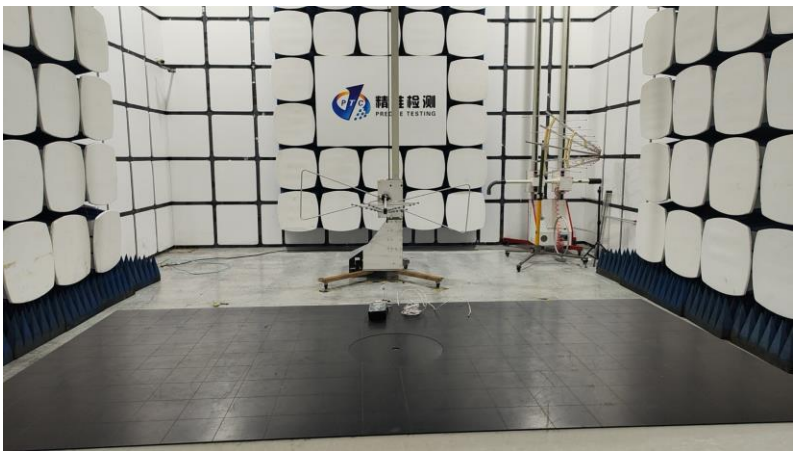
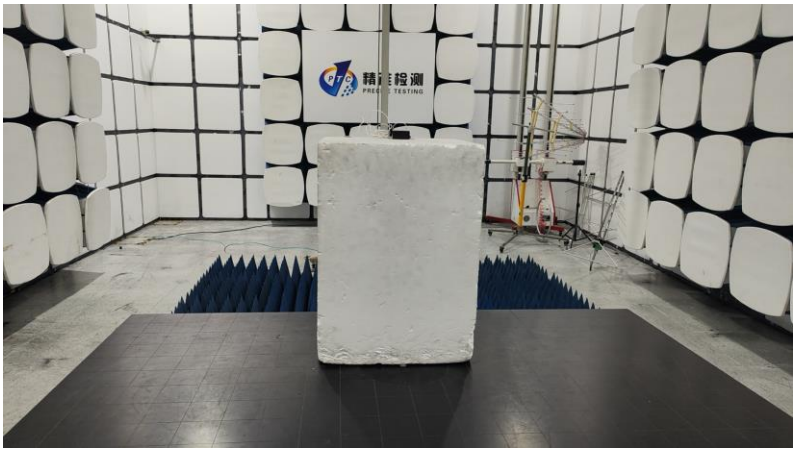
Temperature							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS850	128	VN	-30	16.53	0.020056	±2.5	PASS
GPRS850	128	VN	-20	10.36	0.012570	±2.5	PASS
GPRS850	128	VN	-10	9.81	0.011902	±2.5	PASS
GPRS850	128	VN	0	10.27	0.012461	±2.5	PASS
GPRS850	128	VN	10	15.56	0.018879	±2.5	PASS
GPRS850	128	VN	20	12.69	0.015397	±2.5	PASS
GPRS850	128	VN	30	10.30	0.012497	±2.5	PASS
GPRS850	128	VN	40	12.14	0.014729	±2.5	PASS
GPRS850	128	VN	50	13.95	0.016926	±2.5	PASS
GPRS850	190	VN	-30	9.69	0.011583	±2.5	PASS
GPRS850	190	VN	-20	10.14	0.012120	±2.5	PASS
GPRS850	190	VN	-10	11.49	0.013734	±2.5	PASS
GPRS850	190	VN	0	12.82	0.015324	±2.5	PASS
GPRS850	190	VN	10	14.63	0.017487	±2.5	PASS
GPRS850	190	VN	20	9.01	0.010770	±2.5	PASS
GPRS850	190	VN	30	11.20	0.013388	±2.5	PASS
GPRS850	190	VN	40	6.65	0.007949	±2.5	PASS
GPRS850	190	VN	50	11.14	0.013316	±2.5	PASS
GPRS850	251	VN	-30	12.24	0.014420	±2.5	PASS
GPRS850	251	VN	-20	12.66	0.014915	±2.5	PASS
GPRS850	251	VN	-10	3.65	0.004300	±2.5	PASS
GPRS850	251	VN	0	13.43	0.015822	±2.5	PASS
GPRS850	251	VN	10	13.30	0.015669	±2.5	PASS
GPRS850	251	VN	20	10.91	0.012853	±2.5	PASS

GPRS850	251	VN	30	16.98	0.020005	±2.5	PASS
GPRS850	251	VN	40	14.82	0.017460	±2.5	PASS
GPRS850	251	VN	50	16.47	0.019404	±2.5	PASS
EGPRS850	128	NV	-30	2.58	0.003130	±2.5	PASS
EGPRS850	128	NV	-20	5.49	0.006661	±2.5	PASS
EGPRS850	128	NV	-10	1.07	0.001298	±2.5	PASS
EGPRS850	128	NV	0	2.23	0.002706	±2.5	PASS
EGPRS850	128	NV	10	1.16	0.001407	±2.5	PASS
EGPRS850	128	NV	20	3.16	0.003834	±2.5	PASS
EGPRS850	128	NV	30	6.68	0.008105	±2.5	PASS
EGPRS850	128	NV	40	1.58	0.001917	±2.5	PASS
EGPRS850	128	NV	50	5.59	0.006782	±2.5	PASS
EGPRS850	190	NV	-30	0.61	0.000729	±2.5	PASS
EGPRS850	190	NV	-20	6.78	0.008104	±2.5	PASS
EGPRS850	190	NV	-10	6.30	0.007530	±2.5	PASS
EGPRS850	190	NV	0	6.10	0.007291	±2.5	PASS
EGPRS850	190	NV	10	10.33	0.012348	±2.5	PASS
EGPRS850	190	NV	20	3.91	0.004674	±2.5	PASS
EGPRS850	190	NV	30	6.33	0.007566	±2.5	PASS
EGPRS850	190	NV	40	4.94	0.005905	±2.5	PASS
EGPRS850	190	NV	50	11.66	0.013937	±2.5	PASS
EGPRS850	251	NV	-30	4.16	0.004901	±2.5	PASS
EGPRS850	251	NV	-20	2.58	0.003040	±2.5	PASS
EGPRS850	251	NV	-10	5.91	0.006963	±2.5	PASS
EGPRS850	251	NV	0	13.56	0.015975	±2.5	PASS
EGPRS850	251	NV	10	5.17	0.006091	±2.5	PASS
EGPRS850	251	NV	20	2.78	0.003275	±2.5	PASS
EGPRS850	251	NV	30	0.32	0.000377	±2.5	PASS
EGPRS850	251	NV	40	3.87	0.004559	±2.5	PASS
EGPRS850	251	NV	50	6.91	0.008141	±2.5	PASS

Note:

1. Normal Voltage = 3.7V; Minimun (BEP) = 3.33V; Maximum Voltage =4.07V
2. All modes of EUT have been tested; only the data of worst case mode is reported.

6 Photographs of the Test Setup

Radiated emission



7 Photographs of the EUT

Please reference the “ EUT PHOTO” .

----END OF REPORT----