

TEST REPORT

FCC LTE B13 Test for TFGMEIBBCD4 Class II Permissive Change

APPLICANT LG Electronics Inc.

REPORT NO. HCT-RF-2406-FC012

DATE OF ISSUE September 26, 2024

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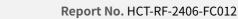
F-TP22-03(Rev.06)

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T E S T R E P O R T	REPORT NO. HCT-RF-2406-FC012 DATE OF ISSUE September 26, 2024 Additional Model TFGMEIBBCD5, TFGMEIBBCD6, TFGMEIBBCD7, TFGMEIBBCD8, TFGMEIBBCD9, TFGMEIBBCDA, TFGMEIBBCDB, TFGMEIBBCD8,
Applicant	LG Electronics Inc. 10, MagokJungang-ro, Gangseo-gu, Seoul 07796, Republic of Korea
Product Name Model Name	
Date of Test	May 07, 2024 ~ June 19, 2024
Location of Test	■ Permanent Testing Lab □ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi- do, Republic of Korea)
FCC ID	BEJTFGMEIBBCD4
FCC Classification	PCS Licensed Transmitter (PCB)
Test Standard Used	FCC Rule Part(s): § 27
Test Results	PASS





REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	September 26, 2024	Initial Release

Notice

Content

The measurements shown in this report were made in accordance with the procedures specified in CFR47 section § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

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The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics Inc
Address:	10, Magok Jungang-ro, Gangseo-gu, Seoul 07796, Republic of Korea
FCC ID:	BEJTFGMEIBBCD4
Application Type:	Class II Permissive Change
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 27
EUT Type:	GM Onstar Gen12 ROW
Model(s):	TFGMEIBBCD4
Additional Model(s)	TFGMEIBBCD5,TFGMEIBBCD6,TFGMEIBBCD7,TFGMEIBBCD8, TFGMEIBBCD9, TFGMEIBBCDA, TFGMEIBBCDB, TFGMEIBBCDC
Tx Frequency:	779.5 MHz –784.5 MHz (LTE – Band 13 (5 MHz)) 782 MHz (LTE – Band 13 (10 MHz))
Date(s) of Tests:	May 07, 2024 ~ June 19, 2024
Serial number:	Radiated : EBR36018942_#30 Conducted : EBR36018942K_#30 UPLINK CARRIER AGGREGATION : EBR36018942K_#14
External Antenna Information	ANT5:86531607 ANT4:86575530 DUT4:85608774



1.1. MAXIMUM OUTPUT POWER

Mada	T., F.,	Funitation		ERP External Antenna		ERP Internal Antenna	
Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)
	779.5 –784.5	4M52G7D	QPSK	0.251	24.00	0.352	25.46
LTE Double (E)		4M51W7D	16QAM	0.209	23.20	0.312	24.94
LTE – Band13 (5)		4M51W7D	64QAM	0.169	22.27	0.244	23.88
		8M97G7D	256QAM	0.083	19.20	0.124	20.93
		8M93G7D	QPSK	0.243	23.86	0.354	25.49
LTE – Band13 (10)	702.0	8M72W7D	16QAM	0.210	23.23	0.286	24.57
	782.0	4M51W7D	64QAM	0.157	21.96	0.169	22.27
		8M95G7D	256QAM	0.080	19.03	0.114	20.58





2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a GM Onstar Gen12 ROW with GSM/GPRS/EGPRS/UMTS and LTE, Sub6.

2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.3. TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea





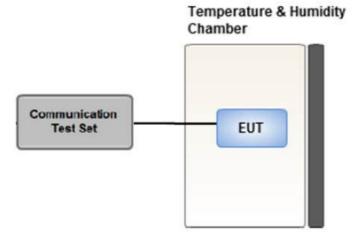
3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- KDB 971168 D01 v03r01 – Section 5.2
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12



3.2 CONDUCTED OUTPUT POWER



Test setup

Test Overview

When an average power meter is used to perform RF output power measurements, the fundamental condition that measurements be performed only over durations of active transmissions at maximum output power level applies.

Conducted Output Power was tested in accordance with KDB971168 D01 Power Meas License Digital Systems v03r01, Section 5.2.

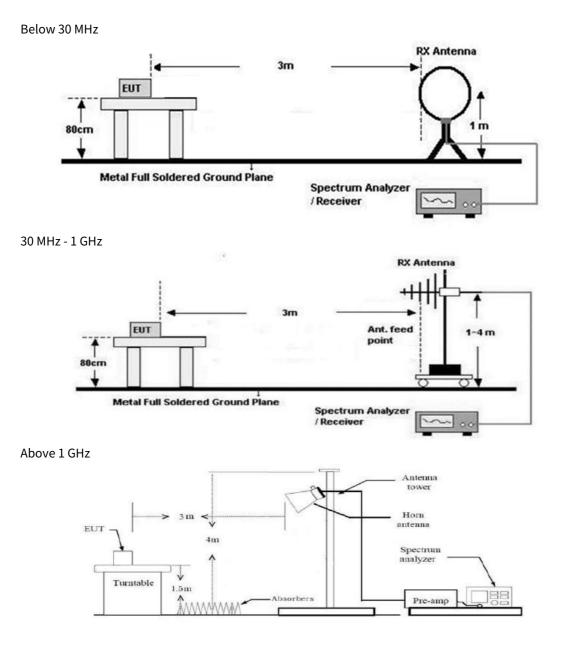


3.3 RADIATED TEST

Test Overview

Radiated tests are performed in the semi-anechoic chamber. The equipment under test is placed on a non-conductive table on semi-anechoic chamber.

Test Configuration



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3.3.1 RADIATED POWER

Test Settings

- 1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
- 2. RBW = 1 5% of the expected OBW, not to exceed 1 MHz
- 3. VBW \geq 3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points > 2 x span / RBW
- 6. Detector = RMS

7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".

8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.

9. Trace mode = trace averaging (RMS) over 100 sweeps

10. The trace was allowed to stabilize

Test Note

- 1. The EUT is placed on a turntable, which is 0.8 m above ground plane. (Below 1 GHz)
- 2. The EUT is placed on a turntable, which is 1.5 m above ground plane. (Above 1 GHz)
- 3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
- 4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 5. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
- 6. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.
- 7. Total(dBµV/m) = Measured Value(dBµV) + Cable Loss(dB) + Antenna Factor(dB/m) + Distance Factor(D.F)
- 8. EIRP (dBm)
 - = Total ($dB_{\mu}V/m$) + 20 log D 104.8 (where D is the measurement distance in meters. D=3)
 - = Total (dBμV/m) 95.2(dB)
- 9. ERP(dBm) = EIRP(dBm) 2.15(dB)



3.3.2 RADIATED SPURIOUS EMISSIONS

Test Settings

- 1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
- 2. VBW \geq 3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points > 2 x span / RBW
- 5. Detector = Peak
- 6. Trace mode = Max Hold
- 7. The trace was allowed to stabilize
- 8. Test channel : Low/ Middle/ High
- 9. Frequency range : We are performed all frequency to 10th harmonics from 9 kHz.

Test Note

1. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.

The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the test data

2. Measurements value show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Below 30 MHz

- 1. The loop antenna was placed at a location 3 m from the EUT
- 2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
- 3. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.

4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

- 5. Distance Correction Factor(0.009 MHz 0.490 MHz) = 40log(3 m/300 m) = 80 dB Measurement Distance : 3 m
- 6. Distance Correction Factor(0.490 MHz 30 MHz) = 40log(3 m/30 m) = -40 dB Measurement Distance : 3 m
- 7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
- 8. EIRP (dBm)

= Total (dB μ V/m) + 20 log D - 104.8 (where D is the measurement distance in meters. D=3) = Total (dB μ V/m) - 95.2(dB)

9. ERP(dBm) = EIRP(dBm) - 2.15(dB)



KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Below 1 GHz

- 1. The EUT is placed on a turntable, which is 0.8 m above ground plane.
- 2. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
- 3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
- 4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 5. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)
- 7. Total(dB μ V/m) = Measured Value(dB μ V) + Cable Loss(dB) + Antenna Factor(dB/m) + Distance Factor(D.F)
- 8. EIRP (dBm)
 - = Total (dB μ V/m) + 20 log D 104.8 (where D is the measurement distance in meters. D=3) = Total (dB μ V/m) - 95.2(dB)
- 9. ERP(dBm) = EIRP(dBm) 2.15(dB)

Above 1 GHz

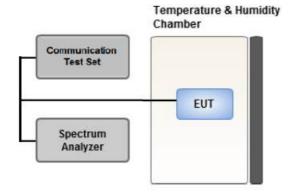
1. The EUT is placed on a turntable, which is 1.5 m above ground plane.

- 2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
- 3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
- 5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 7. Total(dBµV/m) = Measured Value(dBµV) + Cable Loss(dB) + Antenna Factor(dB/m) + Distance Factor(D.F)

- 8. EIRP (dBm)
 - = Total (dB μ V/m) + 20 log D $\,-\,$ 104.8 (where D is the measurement distance in meters. D=3)
 - = Total (dBµV/m) 95.2(dB)



3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

- 1. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 3. Set the measurement interval as follows:
 - .- for continuous transmissions, set to 1 ms,
 - .- or 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.
- 4. Record the maximum PAPR level associated with a probability of 0.1 %.



② Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as as P $_{\rm Pk}$

Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P $_{\rm Avg}$. Determine the P.A.R. from:

P.A.R (dB) = P Pk (dBm) - P Avg (dBm) (P Avg = Average Power + Duty cycle Factor)

Test Settings(Peak Power)

The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW \geq 3 × RBW.

- 1. Set the RBW \geq OBW.
- 2. Set VBW \geq 3 × RBW.
- 3. Set span \geq 2 × OBW.
- 4. Sweep time $\geq 10 \times$ (number of points in sweep) \times (transmission symbol period).
- 5. Detector = peak.
- 6. Trace mode = max hold.
- 7. Allow trace to fully stabilize.
- 8. Use the peak marker function to determine the peak amplitude level.

Test Settings(Average Power)

- 1. Set span to 2 × to 3 × the OBW.
- 2. Set RBW \geq OBW.
- 3. Set VBW \geq 3 × RBW.
- 4. Set number of measurement points in sweep \geq 2 × span / RBW.
- 5. Sweep time:

Set \geq [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.

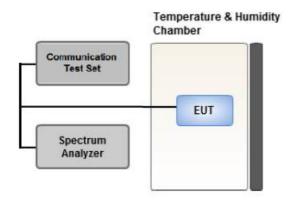
- 6. Detector = power averaging (rms).
- 7. Set sweep trigger to "free run."
- 8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. (To accurately determine the average power over the on and off period of the transmitter, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.)

9. Use the peak marker function to determine the maximum amplitude level.

 Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25 %.



3.5 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The EUT makes a call to the communication simulator.

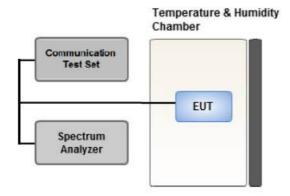
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

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



3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

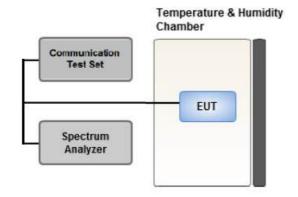
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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

- 1. RBW = 1 MHz
- 2. VBW \geq 3 MHz
- 3. Detector = RMS
- 4. Trace Mode = trace average
- 5. Sweep time = auto
- 6. Number of points in sweep \geq 2 x Span / RBW



3.7 BAND EDGE



Test setup

Test Overview

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

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW > 1 % of the emission bandwidth
- 4. VBW > 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points \geq 2 x Span/RBW
- 7. Trace mode = trace average
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize



Test Notes

According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of The authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

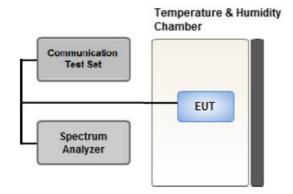
In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

All measurements were done at 2 channels(low and high operational frequency range.) The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

Where Margin < 1 dB the emission level is either corrected by 10 log(1 MHz/ RB) or the emission is integrated over a 1 MHz bandwidth to determine the final result. When using the integration method the integration window is either centered on the emission or, for emissions at the band edge, centered by an offset of 500 kHz from the block edge so that the integration window is the 1 MHz adjacent to the block edge.



3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

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

1. Temperature:

The temperature is varied from -30 °C to +50 °C in 10 °C increments using an environmental chamber.

- 2. Primary Supply Voltage:
 - .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.
 - .- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

- 1. The carrier frequency of the transmitter is measured at room temperature (20 °C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.



3.9 WORST CASE(RADIATED TEST)

- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.

Mode : Internal Antenna, External Antenna (ANT 5, ANT 4, DUT 4)

Worst case : Internal Antenna, External Antenna (ANT 5)

- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- Please refer to the table below.

- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the

worst case bandwidth results are reported.

(External Antenna Worst case : 5 MHz)

(Internal Antenna Worst case : 10 MHz)

- TFGMEIBBCD4 & additional models were tested and the worst case results are reported.

(Worst case : TFGMEIBBCD4)

Test Description	Modulation	RB size	RB offset	Axis		
	QPSK,		Only X			
Effective Dedicted Dewer	16QAM,	See Section 8.2.1				
Effective Radiated Power	64QAM					
	256QAM					
Radiated Spurious and Harmonic Emissions	QPSK	See Sec	tion 8.3.1	Only X		

[External Antenna Worst case]

[Internal Antenna Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK,			
	16QAM,			7
	64QAM	See Section 8.2.2	Z	
	256QAM			
Radiated Spurious and Harmonic Emissions	QPSK	See Sec	tion 8.3.2	Y



3.10 WORST CASE(CONDUCTED TEST)

- All modes of operation were investigated and the worst case configuration results are reported.
- TFGMEIBBCD4 & additional models were tested and the worst case results are reported. (Worst case : TFGMEIBBCD4)

	[Wor	st case]			
Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	QPSK, 16QAM, 64QAM 256QAM	5, 10	Mid	Full RB	0
	QPSK	5	Low High	1	0 24
Band Edge		10	Low High	1	0 49
		5, 10	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	QPSK	5, 10	Low, Mid, High	1	0





Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Antenna Position Tower	MA4640/800-XP-ET	Innco systems	N/A	N/A	N/A
Turn Table	DS2000-S	Innco systems	N/A	N/A	N/A
Turn Table	Turn Table	Ets	N/A	N/A	N/A
Controller (Antenna mast & Turn Table)	CO3000	Innco systems	CO3000/1542/ 57580623/G	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM20090001	N/A	N/A
RF Switch System	TMX0132C	TNM System	TM21100002	N/A	N/A
RF Switch System	FBSR-04C HPF1	TNM System	S5L1	03/12/2025	Annual
RF Switch System	FBSR-04C LNA1	TNM System	S5L4	03/12/2025	Annual
RF Switch System	FBSR-04C HPF2	TNM System	S5L5	03/12/2025	Annual
HIGHPASS FILTER	WHKX10-900-1000- 15000-40SS	WAINWRIGHT INSTRUMENTS	16	07/24/2025	Annual
HIGHPASS FILTER	WHNX6.0/26.5G-6SS	WAINWRIGHT INSTRUMENTS	1	12/11/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/17/2024	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
Loop Antenna (9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Horn Antenna(1 ~ 18 GHz)	HF907	ROHDE & SCHWARZ	103224	05/07/2026	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
Trilog Broadband Antenna	VULB 9168	Schwarzbeck	1135	08/19/2026	Biennial
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/19/2025	Annual
DC Power Supply	E3632A	Hewlett Packard	KR01009150	04/18/2025	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/10/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	ROHDE & SCHWARZ	101510	03/28/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/16/2025	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/14/2025	Annual
Signal Analyzer (10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/19/2025	Annual
Signal Analyzer (5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

4. LIST OF TEST EQUIPMENT

Note: I. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date. 2. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).





5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014.

All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, <i>k</i> =2)



6. SUMMARY OF TEST RESULTS

6.1 Test Condition: Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 27.53(c)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
On all frequencies between 763-775 MHz and 793-805 MHz.	§ 27.53(c)(4)	< 65 + 10log10 (P[Watts])	PASS (See Note1)
Conducted Output Power	§2.1046	N/A	PASS
Frequency stability / variation of ambient temperature	§ 2.1055, § 27.54	Emission must remain in band	PASS

Note:

1. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance.

6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§ 27.50(b)(10)	< 3 Watts max. ERP	PASS
Radiated Spurious and	§ 2.1053,	< 43 + 10log10 (P[Watts]) for	PASS
Harmonic Emissions	§ 27.53(c)	all out-of band emissions	PASS
Undesirable Emissions in	§ 2.1053,	<-70dBW/MHz EIRP (wideband)	PASS
the 1559 – 1610 MHz band	27.53(f)	<-80dBW EIRP (narrowband)	PA32





7. EMISSION DESIGNATOR

GSM Emission Designator

Emission Designator = 249KGXW GSM BW = 249 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W GSM BW = 249 kHz G = Phase Modulation 7 = Quantized/Digital Info W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W WCDMA BW = 4.17 MHz F = Frequency Modulation 9 = Composite Digital Info W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D LTE BW = 4.48 MHz G = Phase Modulation 7 = Quantized/Digital Info D = Data transmission; telemetry; telecommand

<u>QAM Modulation</u> Emission Designator = 4M48W7D LTE BW = 4.48 MHz W = Amplitude/Angle Modulated 7 = Quantized/Digital Info D = Data transmission; telemetry; telecommand



8. TEST DATA

8.1 Conducted Output Power

				Max.A	verage Power	(dBm)
Bandwidth	Modulation	RB Size	RB Offset	23205	23230	23255
				779.5 MHz	782 MHz	784.5 MHz
		1	0	23.59	23.52	23.46
		1	12	23.55	23.58	23.56
		1	24	23.43	23.50	23.40
	QPSK	12	0	22.82	22.69	22.59
		12	6	22.78	22.67	22.69
		12	11	22.72	22.67	22.61
		25	0	22.84	22.70	22.69
		1	0	22.76	22.87	22.81
		1	12	22.91	22.87	22.86
	16QAM	1	24	22.85	22.69	22.80
		12	0	21.81	21.76	21.64
	-	12	6	21.79	21.73	21.78
	-	12	11	21.79	21.70	21.69
	-	25	0	21.83	21.75	21.68
5 MHz		1	0	21.23	21.60	21.94
		1	12	21.86	21.36	21.82
	-	1	24	21.81	21.79	21.80
	64QAM	12	0	20.76	20.22	20.66
	-	12	6	20.86	20.23	20.67
		12	11	20.78	20.21	20.78
	-	25	0	20.19	20.21	20.70
		1	0	19.24	18.73	18.90
		1	12	18.78	18.82	18.57
		1	24	18.80	18.95	18.70
	256QAM	12	0	18.79	18.75	18.63
		12	6	18.80 18.73		18.61
	-	12	11	18.76	18.66	18.70
		25	0	18.80	18.82	18.71



				Max.Average Power (dBm)
Bandwidth	Modulation	RB Size	RB Offset	23230
				782 MHz
		1	0	23.72
		1	24	23.44
		1	49	23.46
	QPSK	25	0	22.77
		25	12	22.79
		25	24	22.66
		50	0	22.74
		1	0	22.87
		1	24	23.12
	16QAM	1	49	22.78
		25	0	21.80
		25	12	21.72
		25	24	21.67
10 MUL		50	0	21.83
10 MHz		1	0	20.93
		1	24	21.51
		1	49	21.77
	64QAM	25	0	20.44
		25	12	20.48
		25	24	20.67
		50	0	20.43
		1	0	18.97
		1	24	18.74
		1	49	18.68
	256QAM	25	0	18.75
		25	12	18.78
		25	24	18.80
		50	0	18.78

The report shall not be (partly) reproduced except in full without approval of the laboratory.



8.2 EFFECTIVE RADIATED POWER

8.2.1 External Antenna

From	Mod/		Measured	A.F+C.L+D.F	Total		Limit	El	RP		RB
Freq (MHz)	Mod/ Bandwidth	Modulation	Level (dBµV)	(dB/m)	(dBµV/m)	Pol	w	w	dBm	Size	Offset
		QPSK	91.14	30.11	121.25	V		0.245	23.90		
770 F		16-QAM	90.31	30.11	120.42	V		0.203	23.07	1	10
779.5		64-QAM	89.51	30.11	119.62	V		0.169	22.27	1	12
		256-QAM	86.43	30.11	116.54	V		0.083	19.19		
		QPSK	91.24	30.11	121.35	V		0.251 24.0	51 24.00	- 1	0
702.0	LTE B13	16-QAM	90.44	30.11	120.55	V	- 2.00	0.209	23.20		
782.0	(5 MHz)	64-QAM	89.40	30.11	119.51	V	< 3.00	0.164	22.16		
		256-QAM	86.44	30.11	116.55	V		0.083	19.20		
		QPSK	90.95	30.11	121.06	V		0.235	23.71		
784.5		16-QAM	90.33	30.11	120.44	V		0.204	23.09		
		64-QAM	89.37	30.11	119.48	V	/ 0.163 22.13	- 1	0		
		256-QAM	86.25	30.11	116.36	V		0.080	19.01]	

Freq	Mad/	od/ Iwidth Modulation Measured Level (dBμV) A.F+C.L+D.F Total (dBμV/m) (dBμV/m)	Measured		Total		Limit	ERP		RB			
(MHz)	Bandwidth		Pol	w	W	dBm	Size	Offset					
	LTE B13 (10 MHz)	QPSK	91.10	30.11	121.21	V	< 3.00			0.243	23.86		
702.0		16-QAM	90.47	30.11	120.58	V		0.210	23.23	- 1	0		
782.0		64-QAM	89.20	30.11	119.31	V		0.157	21.96				
		256-QAM	86.27	30.11	116.38	V		0.080	19.03				



8.2.2 Internal Antenna

Frog	Mod/		Measured	A.F+C.L+D.F	Total		Limit	EF	RP		RB
Freq (MHz)	Bandwidth	Modulation Level		Pol	w	w	dBm	Size	Offset		
		QPSK	92.62	30.11	122.73	Н		0.345	25.38		
770 F		16-QAM	92.18	30.11	122.29	Н		0.312	24.94		10
779.5		64-QAM	91.12	30.11	121.23	Н	-	0.244	23.88	1	12
		256-QAM	88.17	30.11	118.28	Н		0.124	20.93		
		QPSK	92.70	30.11	122.81	Н		0.352	25.46		
702.0	LTE B13	16-QAM	92.10	30.11	122.21	Н	< 3.00	0.306	24.86	1	0
782.0	(5 MHz)	64-QAM	90.93	30.11	121.04	Н		0.234	23.69	- 1	
		256-QAM	88.05	30.11	118.16	Н		0.120	20.81		
		QPSK	92.42	30.11	122.53	Н		0.329	25.18		
704 5		16-QAM	91.77	30.11	121.88	Н		0.284	24.53		
784.5		64-QAM	90.14	30.11	120.25	Н		0.195 22.9	22.90	- 1	0
		256-QAM	87.85	30.11	117.96	Н		0.115	20.61		

Freq	Mod/ Bandwidth	Modulation	Level		Total (dBµV/m)	Pol	Limit	ERP		RB			
(MHz)				A.F+C.L+D.F (dB/m)			w	w	dBm	Size	Offset		
782.0	LTE B13 (10 MHz)	QPSK	92.73	30.11	122.84	0	< 3.00			0.354	25.49		
		16-QAM	91.81	30.11	121.92	0		0.286	24.57		0		
		64-QAM	89.51	30.11	119.62	0		0.169	22.27				
		256-QAM	87.82	30.11	117.93	0		0.114	20.58				



8.3 RADIATED SPURIOUS EMISSIONS

8.3.1 External Antenna

MODE:	LTE B13
MODULATION SIGNAL:	5 MHz QPSK
DISTANCE:	3 meters

		Measured	A.F+C.L+D.F+H.P.F	Total		Result	Limit		RB
Ch	Freq (MHz)	Level (dBµV)	-A.G (dB/m)	(dBµV/m)	Pol	(dBm)	(dBm)	Size	Offset
	1 559 ~ 1610	54.49	-16.52	37.97	V	-57.23	-40.00		
	1559.0	54.58	-16.52	38.06	V	-57.14	-40.00		
23205	2 338.5	57.25	-12.81	44.44	V	-50.76	-13.00	1	10
(779.5)	3 118.0	53.61	-9.22	44.39	V	-50.81	-13.00	1	12
	3 897.5	64.46	-6.80	57.66	V	-37.54	-13.00		
	4 677.0	50.68	-4.94	45.74	V	-49.46	-13.00		
	1 559 ~ 1610	54.89	-16.13	38.76	V	-56.44	-40.00		
	1564.0	55.05	-16.45	38.60	V	-56.60	-40.00	- 1	
23230	2 346.0	56.61	-12.90	43.71	V	-51.49	-13.00		0
(782.0)	3 128.0	54.43	-9.07	45.36	V	-49.84	-13.00		0
	3 910.0	61.10	-6.80	54.30	V	-40.90	-13.00		
	4 692.0	50.18	-4.87	45.31	V	-49.89	-13.00		
	1 559 ~ 1610	55.49	-16.52	38.97	V	-56.23	-40.00		
	1569.0	54.81	-16.38	38.43	V	-56.77	-40.00		
23255	2 353.5	56.72	-12.99	43.74	V	-51.47	-13.00		0
(784.5)	3 138.0	54.39	-8.94	45.45	V	-49.75	-13.00	1	0
	3 922.5	57.30	-6.80	50.50	V	-44.70	-13.00		
	4 707.0	50.10	-4.84	45.26	V	-49.94	-13.00		



MODE:	LTE B13
MODULATION SIGNAL:	10 MHz QPSK
DISTANCE:	3 meters

Ch	Freq (MHz)		A.F+C.L+D.F+H.P.F	Total	Pol	Result	Limit		RB	
CII		Level (dBµV)	-A.G (dB/m)	(dBµV/m)	POI	(dBm)	(dBm)	Size	Offset	
	1 559 ~ 1610	55.66	-16.13	39.53	V	-55.67	-40.00			
	1569.0	55.79	-16.45	39.34	V	-55.86	-40.00			
23230	2,346.0	56.03	-12.90	43.13	V	-52.07	-13.00	1	0	
(782.0)	3,128.0	53.77	-9.07	44.70	V	-50.50	-13.00	- 1	0	
	3,910.0	58.85	-6.80	52.05	V	-43.15	-13.00			
	4,692.0	49.68	-4.87	44.81	V	-50.39	-13.00			



8.3.2 Internal Antenna

MODE:	LTE B13
MODULATION SIGNAL:	5 MHz QPSK
DISTANCE:	3 meters

Ch	Freq (MHz)	Measured Level (dBµV)	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBµV/m)	Pol	Result (dBm)	Limit (dBm)	RB	
								Size	Offset
23205 (779.5)	1 559 ~ 1610	57.84	-16.52	41.32	Н	-53.88	-40.00		12
	1,559.0	58.23	-16.52	41.71	Н	-53.49	-40.00		
	2 338.5	57.71	-12.81	44.90	Н	-50.30	-13.00	1	
	3 118.0	53.24	-9.22	44.02	Н	-51.18	-13.00	1	
	3 897.5	59.79	-6.80	52.99	Н	-42.21	-13.00		
	4 677.0	49.06	-4.94	44.12	Н	-51.08	-13.00		
	1 559 ~ 1610	57.68	-16.45	41.23	Н	-53.97	-40.00	- 1	0
	1,564.0	58.26	-16.45	41.81	Н	-53.39	-40.00		
23230	2 346.0	57.56	-12.90	44.66	Н	-50.54	-13.00		
(782.0)	3 128.0	53.35	-9.07	44.28	Н	-50.92	-13.00		
	3 910.0	64.95	-6.80	58.15	Н	-37.05	-13.00		
	4 692.0	50.30	-4.87	45.43	Н	-49.77	-13.00		
	1 559 ~ 1610	57.55	-16.38	41.17	Н	-54.03	-40.00		0
23255 (784.5)	1,569.0	57.63	-16.38	41.25	Н	-53.95	-40.00	- 1	
	2 353.5	56.21	-12.99	43.23	Н	-51.98	-13.00		
	3 138.0	53.60	-8.94	44.66	Н	-50.54	-13.00		
	3 922.5	64.58	-6.80	57.78	Н	-37.42	-13.00		
	4 707.0	50.48	-4.84	45.64	Н	-49.56	-13.00		



MODE:	LTE B13
MODULATION SIGNAL:	10 MHz QPSK
DISTANCE:	3 meters

Ch	Freq (MHz)	Measured Level (dBµV)	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol	Result (dBm)		RB	
								Size	Offset
	1 559 ~ 1610	58.05	-16.46	41.59	Н	-53.61	-40.00		0
	1,564.0	58.18	-16.45	41.73	Н	-53.47	-40.00	- 1	
23230	2 346.0	58.99	-12.90	46.09	Н	-49.11	-13.00		
(782.0)	3 128.0	53.55	-9.07	44.48	Н	-50.72	-13.00		
	3 910.0	57.93	-6.80	51.13	V	-44.07	-13.00		
	4 692.0	49.45	-4.87	44.58	Н	-50.62	-13.00		



8.4 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
	5 MHz	- 782.0	QPSK	25	0	5.16
			16-QAM			5.89
			64-QAM			6.45
13			256-QAM			6.48
13	10 MHz		QPSK	50		5.21
			16-QAM			5.98
			64-QAM			6.53
			256-QAM			6.45

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 53 ~ 60.



8.5 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
13	5 MHz	782.0	QPSK	25	0	4.5197
			16-QAM			4.5135
			64-QAM			4.5133
			256-QAM			4.5066
	10 MHz		QPSK	50		8.9282
			16-QAM			8.9722
			64-QAM			8.9652
			256-QAM			8.9508

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page $\,$ 45 ~ 52.



8.6 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
		779.5	3.1875	29.976	-67.450	-37.474	
10	5	782.0	3.6910	29.976	-67.286	-37.310	12.00
13		784.5	3.7010	29.976	-67.185	-37.209	-13.00
	10	782.0	3.7020	29.976	-67.224	-37.248	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 61 ~ 64.

2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0

3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)

4. Factor (dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 - 1	27.270
1 – 5	29.976
5 - 10	30.591
10 - 15	31.116
15 - 20	31.489
Above 20(26.5)	32.131

8.7 BAND EDGE

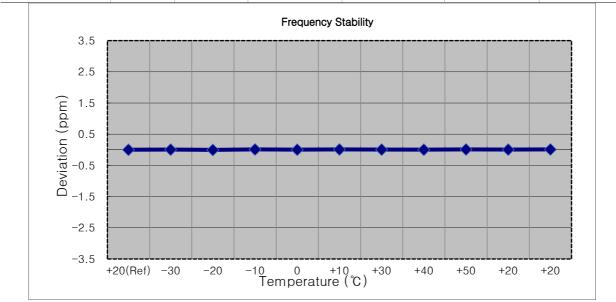
- Plots of the EUT's Band Edge are shown Page 65 ~ 76.



8.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

MODE:	LTE 13
OPERATING FREQUENCY:	779,500,000 Hz
CHANNEL:	23205 (5 MHz)
REFERENCE VOLTAGE:	13.500 VDC
DEVIATION LIMIT:	Emission must remain in band
REFERENCE VOLTAGE:	13.500 VDC

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation		
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	ppm	
100 %		+20(Ref)	779 499 998	0.00	0.000 000	0.0000	
100 %		-30	779 500 003	5.50	0.000 001	0.0071	
100 %		-20	779 499 995	-2.80	0.000 000	-0.0036	
100 %		-10	779 500 006	8.00	0.000 001	0.0103	
100 %	13.500	0	779 500 000	2.40	0.000 000	0.0031	
100 %		+10	779 500 006	8.20	0.000 001	0.0105	
100 %		+30	779 500 003	5.20	0.000 001	0.0067	
100 %		+40	779 499 999	1.80	0.000 000	0.0023	
100 %		+50	779 500 006	8.40	0.000 001	0.0108	
85 %	11.475	+20	779 500 001	3.90	0.000 001	0.0050	
115%	15.525	+20	779 500 006	8.90	0.000 001	0.0114	

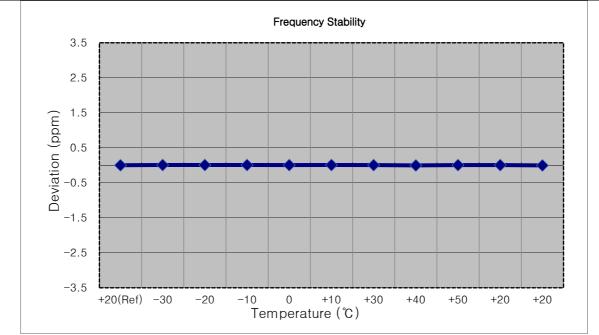


F-TP22-03 (Rev. 06)



MODE:	<u>LTE 13</u>
OPERATING FREQUENCY:	782,000,000 Hz
CHANNEL:	23230 (5 MHz)
REFERENCE VOLTAGE:	13.500 VDC
DEVIATION LIMIT:	Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	ppm
100 %		+20(Ref)	782 000 005	0.00	0.000 000	0.0000
100 %		-30	782 000 010	5.30	0.000 001	0.0068
100 %		-20	782 000 010	5.20	0.000 001	0.0066
100 %		-10	782 000 010	4.70	0.000 001	0.0060
100 %	13.500	0	782 000 009	4.10	0.000 001	0.0052
100 %		+10	782 000 009	4.30	0.000 001	0.0055
100 %		+30	782 000 008	2.60	0.000 000	0.0033
100 %		+40	782 000 002	-3.10	0.000 000	-0.0040
100 %		+50	782 000 009	3.90	0.000 000	0.0050
85 %	11.475	+20	782 000 008	2.70	0.000 000	0.0035
115%	15.525	+20	782 000 002	-3.40	0.000 000	-0.0043



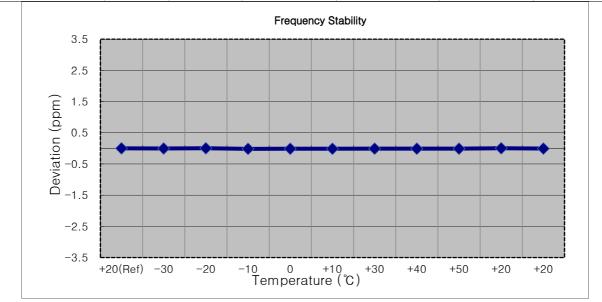
F-TP22-03 (Rev. 06)

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MODE:	LTE 13
OPERATING FREQUENCY:	784,500,000 Hz
CHANNEL:	<u>23255 (5 MHz)</u>
REFERENCE VOLTAGE:	13.500 VDC
DEVIATION LIMIT:	Emission must remain in band

Voltage	Power	Temp. Frequency Frequer		Frequency Error	equency Error Deviation		
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	ppm	
100 %		+20(Ref)	784 499 995	0.00	0.000 000	0.0000	
100 %		-30	784 499 992	-3.30	0.000 000	-0.0042	
100 %		-20	784 499 998	3.10	0.000 000	0.0040	
100 %		-10	784 499 983	-12.20	-0.000 002	-0.0156	
100 %	13.500	0	784 499 986	-9.30	-0.000 001	-0.0119	
100 %		+10	784 499 986	-9.10	-0.000 001	-0.0116	
100 %		+30	784 499 986	-8.90	-0.000 001	-0.0113	
100 %		+40	784 499 986	-8.90	-0.000 001	-0.0113	
100 %		+50	784 499 988	-7.00	-0.000 001	-0.0089	
85 %	11.475	+20	784 499 996	1.10	0.000 000	0.0014	
115%	15.525	+20	784 499 989	-6.10	-0.000 001	-0.0078	

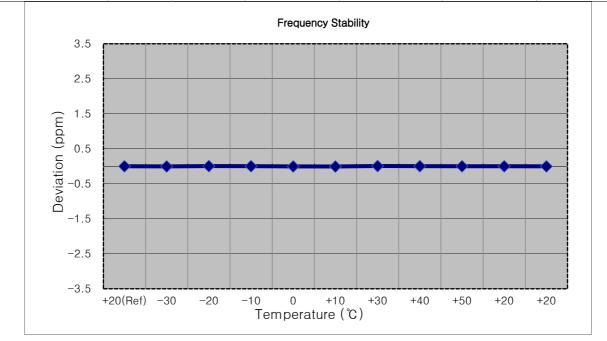


F-TP22-03 (Rev. 06)



MODE:	LTE 13
OPERATING FREQUENCY:	782,000,000 Hz
CHANNEL:	<u>23230 (10 MHz)</u>
REFERENCE VOLTAGE:	13.500 VDC
DEVIATION LIMIT:	Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation		
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	ppm	
100 %		+20(Ref)	782 000 003	0.00	0.000 000	0.0000	
100 %		-30	782 000 000	-3.80	0.000 000	-0.0049	
100 %		-20	782 000 007	3.10	0.000 000	0.0040	
100 %		-10	782 000 005	2.00	0.000 000	0.0026	
100 %	13.500	0	782 000 000	-3.30	0.000 000	-0.0042	
100 %		+10	781 999 998	-5.20	-0.000 001	-0.0066	
100 %		+30	782 000 009	5.10	0.000 001	0.0065	
100 %		+40	782 000 005	1.90	0.000 000	0.0024	
100 %		+50	782 000 002	-1.00	0.000 000	-0.0013	
85 %	11.475	+20	782 000 003	-0.50	0.000 000	-0.0006	
115%	15.525	+20	782 000 001	-2.40	0.000 000	-0.0031	



F-TP22-03 (Rev. 06)

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9. TEST DATA(INTERNAL & EXTERNAL)

9.1 UPLINK CARRIER AGGREGATION

Test Note

1. All tests were evaluated for the two bands using various combinations of RB size, RB offset,

modulation, and channel bandwidth.

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

Please refer to the table below.

3. The worst case is reported with the modulations, RB sizes and offsets.

- (INTERNAL)
2A-13A (PCC - Modulation: BPSK, RB: 1, RB Offset: 13, SCC - Modulation: BPSK, RB: 1, RB Offset: 0)
- (EXTERNAL)

2A-13A (PCC - Modulation: BPSK, RB: 1, RB Offset: 0, SCC - Modulation: BPSK, RB: 1, RB Offset: 0)

Radiated Spurious Emissions

PCC	500	P	cc	SCC		
	SCC	BW(MHz)	Channel	BW(MHz)	Channel	
2A	13A	5	18625	10	23230	
2A	13A	10	18900	5	23230	

9.1.1 RADIATED SPURIOUS EMISSIONS

Internal

2A(PCC)-13A(SCC)

Freq.(MHz)	Measured Level [dBµV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBµV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
3 705.00	63.15	-6.49	56.66	Н	-38.54	-13.00	Peak
5 557.50	61.85	-2.09	59.76	Н	-35.44	-13.00	Peak
7 410.00	48.41	0.44	48.85	V	-46.35	-13.00	Peak

Freq.(MHz)	Measured Level [dBµV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
Narrow Band 1559~1610	64.74	-16.46	48.28	Н	-46.92	-40.00	Peak
1 564.00	61.27	-16.45	44.82	V	-50.38	-40.00	Peak
2 346.00	59.23	-12.90	46.33	Н	-48.87	-13.00	Peak
3 128.00	54.81	-9.07	45.74	V	-49.46	-13.00	Peak
3 910.00	57.53	-6.80	50.73	V	-44.47	-13.00	Peak
4 692.00	51.07	-4.87	46.20	Н	-49.00	-13.00	Peak



External

2A(PCC)- 13A(SCC)

Freq.(MHz)	Measured Level [dBµV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
3 760.00	62.76	-6.18	56.58	V	-38.62	-13.00	Peak
5 640.00	59.86	-2.26	57.60	V	-37.60	-13.00	Peak
7 520.00	47.03	0.99	48.02	V	-47.18	-13.00	Peak

Freq.(MHz)	Measured Level [dBµV]	A.F+C.L+D.F+H.P.F -A.G (dB/m)	Total (dBμV/m)	Pol.	Result (dBm)	Limit (dBm)	Detector
Narrow Band 1559~1610	62.26	-16.46	45.80	V	-49.40	-40.00	Average
1 564.00	62.07	-16.45	45.62	V	-49.58	-40.00	Average
2 346.00	75.20	-12.90	62.30	V	-32.90	-13.00	Peak
3 128.00	60.10	-9.07	51.03	V	-44.17	-13.00	Peak
3 910.00	64.87	-6.80	58.07	V	-37.13	-13.00	Peak
4 692.00	51.30	-4.87	46.43	V	-48.77	-13.00	Peak





10. TEST PLOTS



Agilent Spectrum Analyzer - Oct RL RF 50 G Center Freq 782.00 PASS	AC DOOO MHz		ALIGN AUTO Iz Hold: 500/500	05:56:14 PM May 20, 2024 Radio Std: None	Frequency
Ref Offse 10 dB/div Ref 40.0		#Atten: 20 dB		Radio Device: BTS	
30.0 20.0	mana				Center Free 782.000000 MH
10.0					
20.0 30.0				mmmm	
Center 782 MHz Res BW 100 kHz		#VBW 390 kHz		Span 10 MHz Sweep 1 ms	CF Ste 1.000000 MH <u>Auto</u> Ma
Occupied Band	width 4.5197 M	Total Power Hz	31.3	dBm	Freq Offse 0 H
Transmit Freq Er x dB Bandwidth	ror 20.798 5.005 I			0.00 % 00 dB	
ISG			STATU	3	

LTE B13_5 M_OBW_Mid_QPSK_FullRB



RL RF 50 Ω AC Center Freq 782.000000	MHz	SENSE:INT Center Freq: 782		ALIGN AUTO	05:55:18 Radio Std	M May 20, 2024 : None	Frequency
PASS	₩IFGain:Low	, Trig: Free Run #Atten: 20 dB	AvgHold	d: 500/500	Radio Device: BTS		
Ref Offset 27 dE							
20.0							Center Fre 782.000000 MH
10.0	mann	mm	monnom	n n n n n n n n n n n n n n n n n n n			
0.00	<i>[</i>						
non man man and				h	hours	mm	
10.0				+			
							CF Ste 1.000000 MF
enter 782 MHz Res B₩ 100 kHz		#VBW 39	0 kHz		Swa	ep 1ms	<u>Auto</u> Ma
Occupied Bandwid			I Power	30.	5 dBm		Freq Offse
4	.5135 MI	IZ					UH
Transmit Freq Error	22.314	Hz OBW	Power	99	9.00 %		
x dB Bandwidth	4.918 N	IHz x dB		-26	.00 dB		

LTE B13_5 M_OBW_Mid_16QAM_FullRB



Agilent Spectrum Analyzer - Occupied B	w	SI	ENSE:INT	AL	IGN AUTO	05:55:41 PI	4 May 20, 2024		
Center Freq 782.000000 PASS	MHz #FGain:Low	Trig: Fre	Center Freq: 782.000000 MHz Trig: Free Run Avg Hold: 500/50 #Atten: 20 dB			0/500 Radio Std: None Radio Device: BTS		Frequency	
Ref Offset 27 df 10 dB/div Ref 40.00 dB					· · · ·				
20.0								Center Free 782.000000 MH	
10.0	man	m	m.m.m.	man	-				
0.00	1				1				
20.0					ho	www.	mm		
40.0									
50.0								CF Step 1.000000 MH	
Center 782 MHz #Res BW 100 kHz		#V	BW 390 kH	IZ			n 10 MHz ep 1 ms	<u>Auto</u> Mar	
Occupied Bandwid	Ith .5133 M	47	Total Po	wer	29.4	dBm		Freq Offse 0 Ha	
Transmit Freq Error	9.443		OBW Po	wer	99.	00 %			
x dB Bandwidth	4.995 N	ИНz	x dB		-26.0	0 dB			
ISG					STATUS				

LTE B13_5 M_OBW_Mid_64QAM_FullRB





Agilent Spectrum Analyzer - Occupied BV	1		center and			01.00.05		
RL RF 50 Ω AC Center Freq 782.000000 PASS	MIHz #IFGain:Low	, Trig: F	SENSE:INT Freq: 782.00 Free Run : 20 dB	0000 MHz Avg Hold	ALIGN AUTO	Radio St	PM May 20, 2024 d: None wice: BTS	Frequency
Ref Offset 27 dB 10 dB/div Ref 40.00 dB								
20.0								Center Free 782.000000 MH
0.0	montan		in many	nnnusn	nn			
20.0 20.0 mm Marmont					1	mm	www.www.	
10.0 50.0								CF Ster
Center 782 MHz Res BW 100 kHz		#	VBW 3901	kHz		Sp Sw	an 10 MHz reep 1 ms	1.000000 MH <u>Auto</u> Ma
Occupied Bandwid	th 5066 MI	Hz	Total P	ower	27.	3 dBm		Freq Offse 0 H
Transmit Freq Error	18.613		OBW P	ower	9	9.00 %		
x dB Bandwidth	4.935 N	IHz	x dB		-26	.00 dB		
ISG					STAT			

LTE B13_5 M_OBW_Mid_256 QAM_FullRB



M Agilent Spectrum Analyzer - Occupied BV RL RF 50 Ω AC Center Freq 782.000000		SENSE:INT Center Freg: 782.000000 MHz	ALIGN AUTO	05:58:09 PM May 20, 2024 Radio Std: None	Frequency
PASS	#IFGain:Low		ld: 500/500	Radio Device: BTS	
Ref Offset 27 dE 10 dB/div Ref 40.00 dB					
20.0					Center Free 782.000000 MH
10.0	murm	ang an	m		
0.00	1		4		
20.0			hu	manne	
10.0 menomore					
50 0					CF Ste 2.000000 MH
Center 782 MHz Res B₩ 200 kHz		#VBW 820 kHz		Span 20 MHz Sweep 1 ms	<u>Auto</u> Ma
Occupied Bandwid		Total Power	31.2	dBm	Freq Offse
	.9282 MI			.	
Transmit Freq Error x dB Bandwidth	36.641 k			00 %	
	9.764 M		-26.0	U UB	
SG			STATUS		

LTE B13_10 M_OBW_Mid_QPSK_FullRB



M Agilent Spectrum Analyzer - Occupied BV	(<u> </u>	SENSE:IN	π	ALIGN AUTO	05:57:15	PM May 20, 2024	
Center Freq 782.000000 PASS	MHz #IFGain:Low	Talas Free Day	82.000000 MHz Avg Hold	d: 500/500	Radio Sto	l: None	Frequency
Ref Offset 27 dB 10 dB/div Ref 40.00 dB							
20:0							Center Free 782.000000 MH
10.0	monolum	norman	monuments	m			
0.0	/			ł			
0.0				Jone -	hor man m	mm	
0.0							CF Ste 2.000000 MH
enter 782 MHz Res BW 200 kHz		#VBW	820 kHz			an 20 MHz eep 1 ms	<u>Auto</u> Ma
Occupied Bandwid	th 9722 Mi		tal Power	30.3	dBm		Freq Offse 0 H
Transmit Freq Error	23.316		W Power	99	.00 %		
x dB Bandwidth	9.726 N	1Hz x d	IB	-26.	00 dB		
SG				STATU	5		

LTE B13_10 M_OBW_Mid_16QAM_FullRB



RL RF 50 Ω AC Center Freq 782.000000 PASS PASS	MHZ #IFGain:Low	SENSE:INT Center Freq: 782.000000 MH Trig: Free Run Avgl #Atten: 20 dB	ALIGN AUTO z Hold: 500/500	05:57:37 PM May 20, 2024 Radio Std: None Radio Device: BTS	Frequency
Ref Offset 27 dB					
-og 30.0 					Center Free 782.000000 MH:
10.0	mehaningen	sharrathing store version that strateging	marking		
10.0	/		- \		
30.0			here was a second s	mara ment berg	
number here after hard and the					CF Ste 2.000000 MH
Center 782 MHz Res B₩ 200 kHz		#VBW 820 kHz		Span 20 MHz Sweep 1 ms	<u>Auto</u> Ma
Occupied Bandwid	th 9652 MF	Total Power	29.4	dBm	Freq Offse 0 H
Transmit Freq Error	23.120 k	Hz OBW Power	99	.00 %	
x dB Bandwidth	9.760 M	Hz x dB	-26.	00 dB	
SG			STATUS	1	

LTE B13_10 M_OBW_Mid_64QAM_FullRB

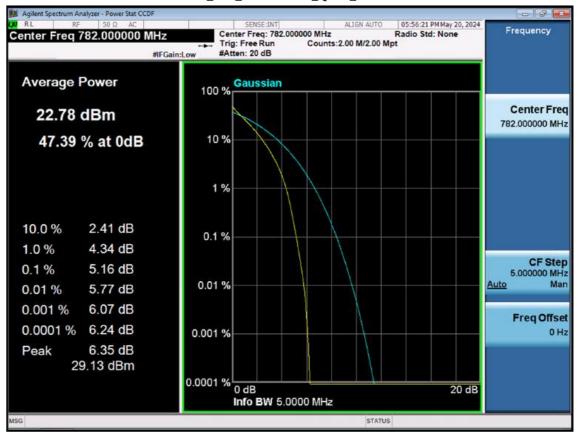




🙀 Agilent Spectrum Analyzer - Occupied BW	<u>1</u>	An example in the second				00
RL RF 50 Ω AC Center Freq 782.0000000 PASS	MHZ #IFGain:Low	SENSE:INT Center Freq: 782.00 Trig: Free Run #Atten: 20 dB		Radio 500/500	4:47 PM May 20, 2024 Std: None Device: BTS	Frequency
Ref Offset 27 dB 10 dB/div Ref 40.00 dBr				- \		
30.0 20.0						Center Free 782.000000 MHz
0.00	programme would	month of the second second	annowle	1		
10.0 20.0	/			manner	mana.	
30.0 40.0 50.0					- Andrew	
Center 782 MHz #Res BW 200 kHz		#VBW 820	kHz		Span 20 MHz Sweep 1 ms	CF Step 2.000000 MHz <u>Auto</u> Man
Occupied Bandwidt 8.	th 9508 M	Total F HZ	ower	27.1 dBn	ו	Freq Offsel 0 Hz
Transmit Freq Error	31.813	kHz OBW F	ower	99.00 %	6	
x dB Bandwidth	9.786 M	/Hz xdB		-26.00 dE	3	
ISG				STATUS		

LTE B13_10 M_OBW_Mid_256QAM_FullRB





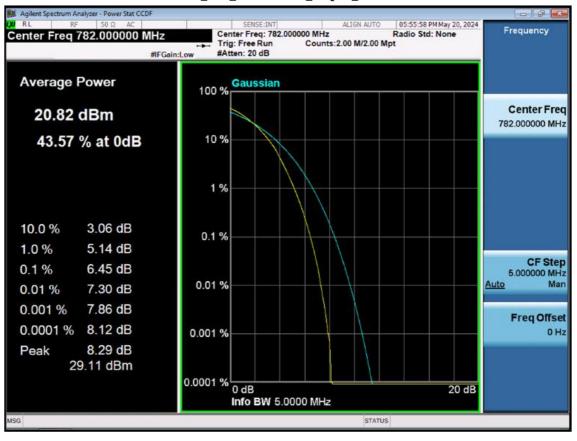
5 M_PAR_Mid Channel_QPSK_FullRB





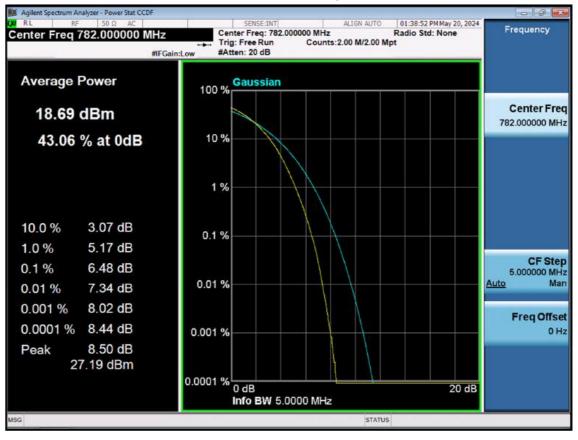
5 M_PAR_Mid Channel_16QAM_FullRB





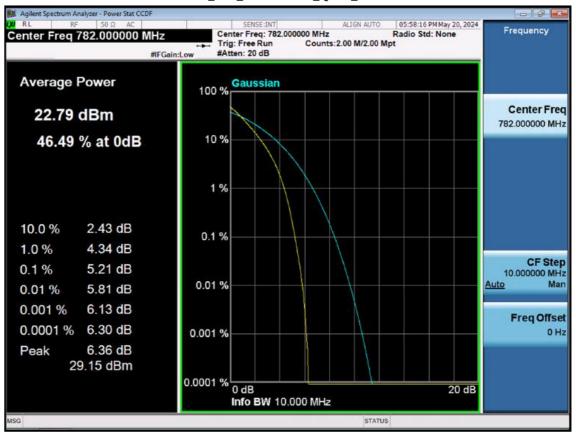
5 M_PAR_Mid Channel_64QAM_FullRB





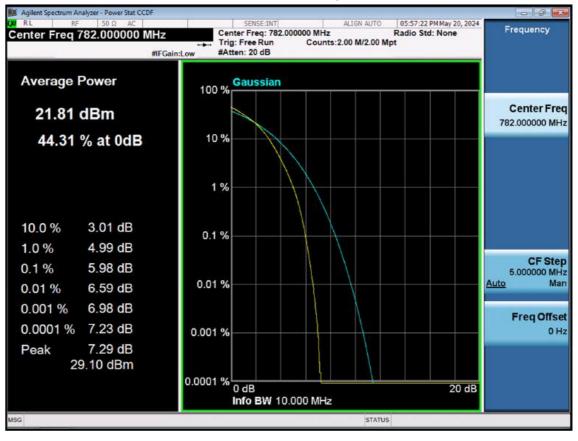
5 M_PAR_Mid Channel_256QAM_FullRB





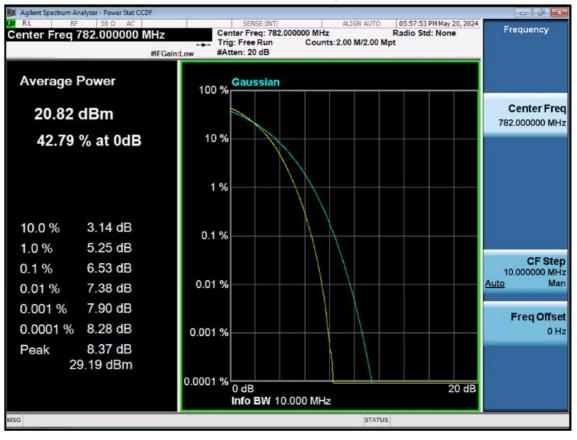
10 M_PAR_Mid Channel_QPSK_FullRB





10 M_PAR_Mid Channel_16QAM_FullRB





10 M_PAR_Mid Channel_64QAM_FullRB





10 M_PAR_Mid Channel_256QAM_FullRB



	ctrum Analyzer - S	wept SA				
Center F		000000 GHz	ast Trig: Free Ru	#Avg Type: RN	AUTO 01:37:09 PM May 20, 2 1S TRACE 2 3 4 TYPE A WWW DET A A A A	Frequency
10 dB/div	Ref 10.0	IFGain:	dol		Mkr1 3.187 5 GF -67.450 dB	Auto Tune
0.00	\$ ²					Center Freq 5.015000000 GHz
-30.0 -40.0 -50.0						Start Free 30.000000 MHz
-60.0 -70.0 -80.0	_			ana an	5 	Stop Fred 10.000000000 GHz
Start 30 I #Res BW	MHz 1.0 MHz		#VBW 3.0 MHz	Swee	Stop 10.000 GF p 17.33 ms (20001 pf	
MKR MODE T 2 N 3 4 5 6	1 f	X 3.187 5 Gł 777.8 Mł		FUNCTION FUNCTION	FUNCTION VALUE	Freq Offset
7 8 9 10 11						•
VISG			. 10		STATUS	

LTE B13_5 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



Agilent Spectrum Analyzer - Swept SA		1	7AL			- 9 - 8
× RL ଅନ୍ 50 ହ AC Center Freq 5.015000000	GHz PNO: Fast	SENSE:IN	#Avg	ALIGN AUTO	01:39:39 PM May 20, 2024 TRACE 1 2 3 4 5 TYPE A WWWWW DET A A A A A A	Frequency
10 dB/div Ref 10.00 dBm	IFGain:Low	#Atten: 20 dB		Mk	r1 3.691 0 GHz -67.286 dBm	Auto Tune
Log 0.00 -10.0 -20.0						Center Free 5.015000000 GH
-30.0						Start Free 30.000000 MH
-60.0			ويو ^{رون} ي _{الال} ان من المحين		RMS	Stop Free 10.000000000 GH
Start 30 MHz #Res BW 1.0 MHz	#VBW	3.0 MHz		Sweep 17	Stop 10.000 GHz .33 ms (20001 pts)	CF Step 997.000000 MH Auto Mar
MKR MODE TRC SCL X 1 N 1 f 3. 2 N 1 f 3 4 5 5	691 0 GHz 780.2 MHz	¥ -67.286 dBm -4.566 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Freq Offse
6 7 8 9 10						
4 ISG		т		STATUS	5	

LTE B13_5 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



No. 2 Cont.	Analyzer - Swept SA							- 6 .
	RF 50 Ω AC 5.015000000	GHz	SENSE:IN	#Avg	ALIGN AUTO	01:41:56 PM May 20, TRACE 1 2 3 4 TYPE A WWW	5 Free	uency
10 dB/div R	ef 10.00 dBm	PNO: Fast → IFGain:Low	#Atten: 20 dB		Mk	r1 3.701 0 G -67.185 dB	A A	uto Tune
Log 0.00 ↓2 -10.0								nter Fred 00000 GH;
-30.0 -40.0 -50.0								Start Fred 00000 MH:
-60.0 -70.8 -80.0					-			Stop Fred 00000 GH:
Start 30 MHz #Res BW 1.0	MHz	#VBV	V 3.0 MHz		Sweep 17	Stop 10.000 G .33 ms (20001 p	Hz sts) 997.0 Auto	CF Step 00000 MH
MKR MODE TRC SI 1 N 1 1 2 N 1 6 3 4 5	3.7	701 0 GHz 787.2 MHz	7 -67.185 dBm -4.352 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	ń —	eq Offse 0 H:
6 7 8 9 10 11								
e -			m					
ISG					STATUS			

LTE B13_5 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



Agilent Spectrum Analyzer - Swept SA				- 6 - 8
Center Freq 5.015000000	GHz PNO: Fast +++ Trig: Free Ru	#Avg Type: RMS	01:44:13 PM May 20, 2024 TRACE 1 2 3 4 5 0 TYPE A WWWWW DET A A A A A A	Frequency
10 dB/div Ref 10.00 dBm	IFGain:Low #Atten: 20 dE		cr1 3.702 0 GHz -67.224 dBm	Auto Tune
Log 0.00 ↓10.0 -20.0				Center Free 5.015000000 GH:
-30.0				Start Free 30.000000 MH
-60.0 -70.0 -80.0			RMS Repairing the second	Stop Free 10.000000000 GH
Start 30 MHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 17	Stop 10.000 GHz 7.33 ms (20001 pts)	CF Step 997.000000 MH Auto Mai
	702 0 GHz -67.224 dBm 778.2 MHz -3.554 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse
6 7 8 9 10				
//sg	m	STATU		

LTE B13_10 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



Agilent Spectrum Analyzer - Swept SA						- 9 ×
RL RF 50 Ω AC Center Freq 776.000000	PNO: Wide Ing:	SENSE:INT	#Avg Typ	ALIGN AUTO	01:36:56 PM May 20, 2024 TRACE 1 2 3 4 5 TYPE A WWWW DET A A A A A A	Frequency
Ref Offset 27 dB 0 dB/div Ref 27.00 dBm	IFGein:Low #Atter	n: 20 dB		Mk	r1 775.984 MHz -51.377 dBm	in the second
17.0			\land			Center Free 776.000000 MH
3.00						Start Fre 772.000000 MH
23.0					-13.00 dBn	Stop Fre 780.000000 MH
43.0			/	And the second		CF Ste 800.000 kH Auto Ma
53.0		1			The second second	Freq Offs 0 F
Center 776.000 MHz Res BW 100 kHz	#VBW 300 k	LI7		#Swaap	Span 8.000 MHz 1.000 s (1001 pts	
ISG	#VEW 300 K	112		STATUS		

LTE B13_5 M_Band Edge_Low_QPSK_1RB



00				rum Analyzer - Swept SA	
Frequency	01:36:10 PM May 20, 2024 TRACE 2 3 4 5 1 TYPE A WWWWW DET A A A A A A	ALIGN AUTO #Avg Type: RMS	Trig: Free Run #Atten: 20 dB	RF 50 Ω AC eq 776.000000 MHz PNO: Wide ↔	RL Center Fi
Auto Tun	1 775.960 MHz -36.484 dBm	Mki	#Atten: 20 0D	Ref Offset 27 dB Ref 27.00 dBm	0 dB/div
Center Fre 776.000000 MH					17.0
Start Fre 772.000000 MH	RMS				.00
Stop Fre 780.000000 MF	-13.00 dBm				23.0
CF Ste 800.000 kł Auto Ma			1		33.0
Freq Offs 0 F					3.0
	Span 8.000 MHz 1.000 s (1001 pts)	#Sween	(300 kHz	6.000 MHz 100 kHz #VBM	enter 77
		STATUS			sg

LTE B13_5 M_Band Edge_Low_QPSK_FullRB



				(i	ctrum Analyzer - Swept SA	
Frequency	01:36:31 PM May 20, 2024 TRACE 2 3 4 5 1 TYPE A WWWWW DET A A A A A A	ALIGN AUTO #Avg Type: RMS	- Trig: Free Run #Atten: 20 dB	PNO: Wide	RF 50 Ω AC req 769.000000 N	Center F
Auto Tune	1 774.976 MHz -58.538 dBm	Mkr	#Atten: 20 db	IFGain:Low	Ref Offset 27 dB Ref -10.00 dBm	10 dB/div
Center Freq 769.000000 MHz						-20.0
Start Free 763.000000 MHz	-35.00 dBm					-30.0
Stop Fred 775.000000 MH2	1 RM					-50.0
CF Step 1.200000 MH Auto Mar	and the second se	นะแปล้างการการการการการการการ 	⁶ 1920-9-18-852-8-22-11-1-22-15-25-15-15-25-15-15-15-15-15-15-15-15-15-15-15-15-15	an ang na gang ang ang ang ang ang ang a	annan-standingern-orsetanoonalah	-70.0
Freq Offse 0 H:						-90.0
	Stop 775.000 MHz 1.000 s (1001 pts)	#Sween	/ 30 kHz	#\/B\//	.000 MHz	Start 763 #Res BW
		STATUS		# 1 577		MSG

LTE B13_5 M_Extended Band Edge_Low_QPSK_FullRB



	ctrum Analyzer - Swept SA	11 N	1			0.5
Center F	RF 50 Ω AC req 788.000000	PNO: Wide	SENSE:INT Trig: Free Run #Atten: 20 dB	ALIGN AUTO #Avg Type: RMS	01:41:43 PM May 20, 2024 TRACE 2 3 4 5 TYPE A WWWWW DET A A A A A A	Frequency
0 dB/div	Ref Offset 27 dB Ref 27.00 dBm			M	kr1 788.008 MHz -52.101 dBm	Auto Tur
17.0		\wedge				Center Fre 788.000000 MH
.00						Start Fre 784.000000 Mi
23.0					-13.00 dBm	Stop Fre 792.000000 Mi
3.0						CF Ste 800.000 ki Auto Ma
3.0			hour 1	7	RMS	Freq Offs 01
	38.000 MHz 100 kHz	#VBW 3	00 kHz	#Swee	Span 8.000 MHz 5 1.000 s (1001 pts)	
9G				STAT	us	

LTE B13_5 M_Band Edge_High_QPSK_1RB



Agilent Spectrum Analyzer - S						
enter Freq 788.00	00000 MH	PNO: Wide	SENSE:INT Trig: Free Run #Atten: 20 dB	ALIGN AUTO #Avg Type: RMS	01:40:55 PM May 20, 2024 TRACE 2 3 4 5 TYPE A WWWWW DET A A A A A A	Frequency
Ref Offset 2	27 dB	FGain:Low	#Atten: 20 0B	М	kr1 788.000 MHz -27.012 dBm	Auto Tuno
7.0						Center Free 788.000000 MH
00						Start Fre 784.000000 MH
3.0			1		-13.00 dĐin	Stop Fre 792.000000 MH
3.0					PIMS	CF Ste 800.000 kH Auto Ma
3,0						Freq Offs 0 H
enter 788.000 MHz Res BW 100 kHz		#\/B\A	300 kHz	#6₩00	Span 8.000 MHz p 1.000 s (1001 pts)	
G TOO KHZ		WODV	500 KH2	STAT	den pr	4

LTE B13_5 M_Band Edge_High_QPSK_FullRB



Agilent Spectrum Analyzer - Swe					- 9 S
RL RF 50 Ω Center Freq 799.000		SENSE:INT	ALIGN AUTO #Avg Type: RMS	01:41:14 PM May 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
Ref Offset 27 10 dB/div Ref -10.00	IFGain:Low	#Atten: 20 dB	Mk	r1 793.168 MHz -61.035 dBm	Auto Tune
-20.0					Center Freq 799.000000 MHz
-40.0				-35 00 dBm	Start Freq 793.000000 MHz
-50.0					Stop Freq 805.000000 MHz
.70.0	**************************************	elisten til tiller besekten som det for de seger men stat blevel	azantara (Minumon aliPatipunei Mininta	RMS www.rearyVinceAted.chtprogramminger	CF Step 1.200000 MHz Auto Mar
-90.0					Freq Offsel 0 Hz
Start 793.000 MHz #Res BW 10 kHz	#\/B\A	30 kHz	#Sween	Stop 805.000 MHz 1.000 s (1001 pts)	
ASG	<i>"</i> 2010/0	SO KHZ	STATUS	20	

LTE B13_5 M_Extended Band Edge_High_QPSK_FullRB



	trum Analyzer - Swept SA							6
Center Fr	RF 50 Ω AC req 776.000000 I	MHz	SENSE:INT	#Avg Type	ALIGN AUTO e: RMS	01:44:00 PM Ma TRACE		Frequency
10 dB/div	Ref Offset 27 dB Ref 27.00 dBm	PNO: Wide Ing: F IFGain:Low #Atten			Mk	рет <mark>А</mark> r1 775.992 -53.567	AAAAA	Auto Tune
17.0				(Center Free 776.000000 MH
3.00								Start Free 772.000000 MH
-13.6							-13.00 dBm	Stop Fre 780.000000 MH
43.0						N. N		CF Ste 800.000 kH Auto Ma
53.0	1,	de main in management de management de	1 and			and the second second	RMS	Freq Offse 0 H
center 77	6.000 MHz 100 kHz	#VBW 300 kł	łz		#Sweep	Span 8.00 1.000 s (10	0 MHz 01 pts)	
ISG					STATUS			

LTE B13_10 M_Band Edge_Low_QPSK_1RB



	ctrum Analyzer - Swept SA					dia Non-transmissione		. lec	- I 🗗 💽
Center F	RF 50 Ω AC req 776.000000 I	PNO: Wide In	ig: Free Run	#Avg Type	RMS	01:43:14 PM Ma TRACE 1 TYPE	23456	Frequ	Jency
10 dB/div	Ref Offset 27 dB Ref 27.00 dBm	IFGain:Low #A	Atten: 20 dB		Mk	1 775.984 -38.659	MHz dBm	A	uto Tune
17.0									oter Fred
-3.00				ſ			RMS		tart Fred
-13.0							-13.00 dBm		top Fred 0000 MH:
-33.0									CF Step 0.000 kH Mar
-53.0								Fre	e q Offse 0 H
Center 77	76.000 MHz 100 kHz	#VBW 30	0 kHz		#Sweep	Span 8.00 1.000 s (100	0 MHz)1 pts)		
ISG					STATUS				

LTE B13_10 M_Band Edge_Low_QPSK_FullRB



Agilent Spectrum Analyzer - Swept SA				
Center Freq 769.000000 M		#Avg Type: RMS	01:43:34 PM May 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
Ref Offset 27 dB 10 dB/div Ref -10.00 dBm	PNO: Wide Ing: Free Run IFGein:Low #Atten: 20 dB		r1 775.000 MHz -61.675 dBm	Auto Tune
-20.0				Center Freq 769.000000 MHz
-30.0			-35 00 dBm	Start Freq 763.000000 MHz
-50.0			1-	Stop Freq 775.000000 MHz
70.0	#1-1***********************************	และมูลสมาร์สารแก่สุด แก่สัญหารักสำนักสารเข	neversternerasies.ense	CF Step 1.200000 MH Auto Mar
90.0				Freq Offse 0 H:
-100 Start 763.000 MHz #Res BW 10 kHz	#VBW 30 kHz	#Swoon	Stop 775.000 MHz 1.000 s (1001 pts)	
MSG	WOW JOANZ	STATU	aya	

LTE B13_10 M_Extended Band Edge_Low_QPSK_FullRB



	ctrum Analyzer - Swept SA		1			09
Center F	RF 50 Ω AC req 788.000000	PNO: Wide	rig: Free Run Atten: 20 dB	ALIGN AUTO #Avg Type: RMS	01:47:24 PM May 20, 2024 TRACE 2 3 4 5 TYPE A WWWWW DET A A A A A A	Frequency
10 dB/div	Ref Offset 27 dB Ref 27.00 dBm	IFGain:Low #	Atten: 20 dB	Mkr1 788.024 MHz -52.209 dBm		Auto Tun
17.0						Center Free 788.000000 MH
3.00						Start Fre 784.000000 MH
13.0 23.0					-13.00 dBm	Stop Fre 792.000000 MH
33.0						CF Ste 800.000 kH Auto Ma
53.0	and a start of the		Nyme 1		RMS	Freq Offse 0 H
	38.000 MHz 100 kHz	#VBW 30	00 kHz	#Swee	Span 8.000 MHz p 1.000 s (1001 pts)	
SG				STAT	rus	11. In 11

LTE B13_10 M_Band Edge_High_QPSK_1RB



0 5					1		ctrum Analyzer - Swept SA	
Frequency	M May 20, 2024 DE 1 2 3 4 5 4 PE A WWWWWW ET A A A A A A	TRAC	ALIGN AUTO	#Avg T	rig: Free Run Atten: 20 dB	PNO: Wide	RF 50 Ω AC req 788.000000 N	RL enter F
Auto Tun	200 MHz 20 dBm	265	Mk		THEN. 20 GD	IFGain:Low	Ref Offset 27 dB Ref 27.00 dBm	dB/div
Center Fre 788.000000 MH								0
Start Fre 784.000000 MH							· · · · · · · · · · · · · · · · · · ·	0
Stop Fro 792.000000 Mi	-13.00 dBm							0
CF Ste 800.000 k Auto M	RMS		And and the second second		↓ ¹			0
Freq Offs 0								0
	.000 MHz 1001 pts)	Span 8	#Sween		0 kHz	#VBW 3	8.000 MHz 100 kHz	
			STATUS			<i>"</i> • B • • •		

LTE B13_10 M_Band Edge_High_QPSK_FullRB



	trum Analyzer - Swept SA	11				
Center Fr	RF 50 Ω AC req 799.000000		SENSE:INT	ALIGN AUTO #Avg Type: RMS	01:46:55 PM May 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
10 dB/div	Ref Offset 27 dB Ref -10.00 dBm	IFGain:Low	#Atten: 20 dB		r1 793.048 MHz -57.181 dBm	Auto Tune
-20.0						Center Freq 799.000000 MHz
-30.0					-35.00 dBm	Start Free 793.000000 MHz
-50.0 - 1	and a firm of the firm of the					Stop Freq 805.000000 MHz
-70.0	and the second s	างสุรัทษอุษากรุ่งการรูกการรั	hansynneriden fan yn de rywydd	หมู่กับพังธุรักษา _ย ากใช่ประ _จ ปรีขยากกรรมที่สามารถ	RMS gradet and the state of the state	CF Step 1.200000 MH: Auto Mar
-90.0						Freq Offse 0 H
Start 793. #Res BW		#VBW	30 1/47	#Ouv.com	Stop 805.000 MHz 1.000 s (1001 pts)	
MSG		#VDV	50 KH2	SWEEP		

LTE B13_10 M_Extended Band Edge_High_QPSK_FullRB



11. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2406-FC012-P