

## FCC Test Report (Part 90S)

**Report No.:** RFBEOO-WTW-P21020574-1

**FCC ID:** MADG060708-50-01B

**Test Model:** G060708-50-01B

**Received Date:** Feb. 26, 2021

**Test Date:** Mar. 31 to May 05, 2021

**Issued Date:** July 13, 2021

**Applicant:** Microelectronics Technology Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**FCC Registration /  
Designation Number:** 723255 / TW2022



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### Release Control Record

Issue No.	Description	Date Issued
RFBEOO-WTW-P21020574-1	Original release	July 13, 2021

## 1 Certificate of Conformity

**Product:** Triple Low Band RU

**Brand:** MTI

**Test Model:** G060708-50-01B


**Sample Status:** Engineering sample

**Applicant:** Microelectronics Technology Inc.

**Test Date:** Mar. 31 to May 05, 2021

**Standards:** FCC Part 90, Subpart S

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**  , **Date:** July 13, 2021  
Claire Kuan / Specialist

**Approved by :**  , **Date:** July 13, 2021  
Clark Lin / Technical Manager

## 2 Summary of Test Results

Applied Standard: FCC Part 90S & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 90.635 (a)	Effective radiated power	PASS	Meet the requirement of limit.
2.1047	Modulation characteristics	PASS	Meet the requirement
2.1055 90.213	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 90.209	Occupied Bandwidth	PASS	Meet the requirement of limit.
2.1051 90.691	Emission Mask	PASS	Meet the requirement of limit.
2.1051 90.691	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 90.691	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -47.90dB at 4332.5MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.4 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

## 2.2 Test Site and Instruments

### For radiated spurious emissions test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 06, 2020	July 05, 2021
Pre-Amplifier EMCI	EMC001340	980142	May 25, 2020	May 24, 2021
Loop Antenna Electro-Metrics	EM-6879	264	Mar. 05, 2021	Mar. 04, 2022
RF Cable	5D-FB	LOOPCAB-001	Jan. 07, 2021	Jan. 06, 2022
RF Cable	5D-FB	LOOPCAB-002	Jan. 07, 2021	Jan. 06, 2022
Pre-Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	Oct. 20, 2020	Oct. 19, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 05, 2020	Nov. 04, 2021
RF Cable	8D	966-3-1	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-2	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-3	Mar. 16, 2021	Mar. 15, 2022
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 24, 2020	Sep. 23, 2021
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC104-SM-SM-1500	180504	Apr. 26, 2021	Apr. 25, 2022
RF Cable	EMC104-SM-SM-2000	180601	June 09, 2020	June 08, 2021
RF Cable	EMC104-SM-SM-6000	180602	June 09, 2020	June 08, 2021
Spectrum Analyzer Keysight	N9030A	MY54490679	July 13, 2020	July 12, 2021
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 22, 2020	Nov. 21, 2021
RF Cable	EMC102-KM-KM-1200	160924	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC-KM-KM-4000	200214	Mar. 10, 2021	Mar. 09, 2022
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

#### Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Tested Date: May 05, 2021



**For other test:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Keysight	N9030B	MY57142938	Apr. 28, 2020	Apr. 27, 2021
18GHz 30dB 100W Fixed Attenuator Woken(*)	WATT-10018FS-30	N/A	May. 15, 2020	May. 14, 2022
Temperature & Humidity Chamber TERCHY	MHU-225AU	911033	Nov. 24, 2020	Nov. 23, 2021
True RMS Clamp Meter FLUKE	179	89610322	Sep. 23, 2020	Sep. 22, 2021
DC power supply Allpower	DC60-60D	212005	NA	NA
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA

- NOTE:**
1. The test was performed in Oven room 2.
  2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  3. (\*)The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
  4. Tested Date: Mar. 24 to Apr. 09, 2021

### 3 General Information

#### 3.1 General Description of EUT

Product	Triple Low Band RU			
Brand	MTI			
Test Model	G060708-50-01B			
Status of EUT	Engineering sample			
Power Supply Rating	DC :-40.5V~-58.5V			
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM			
Operating Frequency	Band n26	ANT2	Channel Bandwidth 5MHz)	866.5MHz
		ANT3		
Max. ERP Power	Band n26	ANT2	(Channel Bandwidth 5MHz)	912.01 W(QPSK)
		ANT3		
Modulation Technology	5G NR FDD			
Emission Designator	Band n26	ANT2	Channel Bandwidth 5MHz	QPSK: 4M50G7D 16QAM: 4M50D7W 64QAW: 4M49D7W 256QAW: 4M47D7W
		ANT3		
Antenna Type	Directional Cross-Polarized Sector antenna with : Band 26 Gain = 16 dBi Band 29 Gain = 18 dBi Band 71 Gain = 18 dBi			
Antenna Connector	4x4.3-10 Female			
Accessory Device	NA			
Data Cable Supplied	NA			

Note:

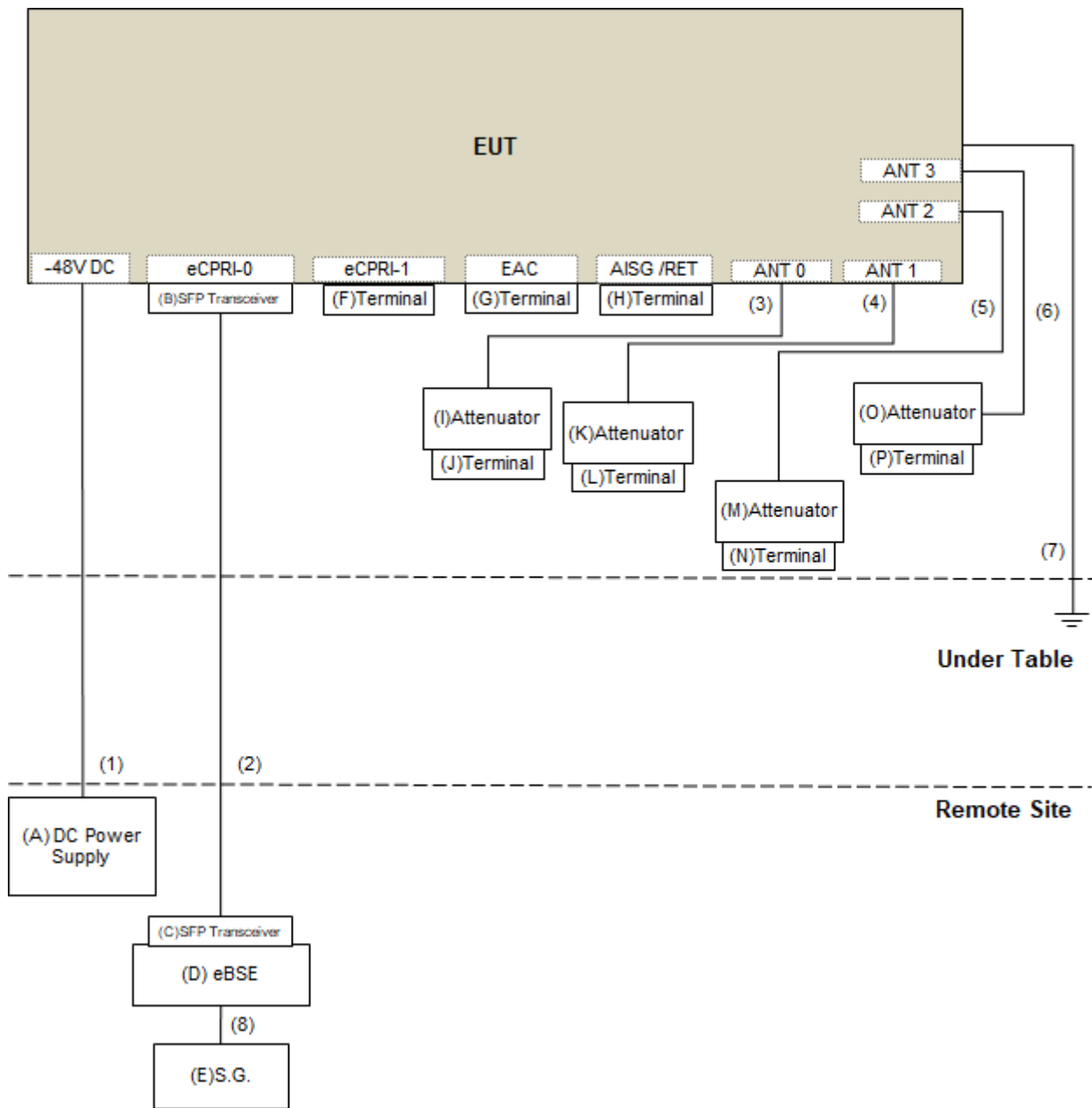
1. The EUT incorporates a MIMO function for 5G NR mode.

Channel Bandwidth	Modulation	TX & RX configuration	
5MHz	QPSK, 16QAM, 64QAM, 256QAM	2TX	4RX

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
3. The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
4. Based on the maximum RF power (conducted & EIRP) listed in this report, considerations pertaining to the maximum allowed EIRP (conducted power level), signal type and antenna gain should be considered for each installation.



### 3.2 Configuration of System under Test



### 3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	DC Power Supply	NA	NA	NA	NA	Supplied by client
B	SFP Transceiver	NA	NA	NA	NA	Supplied by client
C	SFP Transceiver	NA	NA	NA	NA	Supplied by client
D	eBSE (Note 2)	NA	NA	NA	NA	Supplied by client
E	S.G	Agilent	E4438C	NA	NA	Provided by Lab
F	Terminal	NA	NA	NA	NA	Supplied by client
G	Terminal	NA	NA	NA	NA	Supplied by client
H	Terminal	NA	NA	NA	NA	Supplied by client
I	Attenuator	NA	NA	NA	NA	Supplied by client
J	Terminal	NA	NA	NA	NA	Supplied by client
K	Attenuator	NA	NA	NA	NA	Supplied by client
L	Terminal	NA	NA	NA	NA	Supplied by client
M	Attenuator	NA	NA	NA	NA	Supplied by client
N	Terminal	NA	NA	NA	NA	Supplied by client
O	Attenuator	NA	NA	NA	NA	Supplied by client
P	Terminal	NA	NA	NA	NA	Supplied by client

**NOTE:**

1. All power cords of the above support units are non-shielded (1.8 m).
2. eBSE: evolved Based Station Emulator which is to transmit/receive the waveform

No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1	DC Power Cable	1	10	Yes	0	Supplied by client
2	Coaxial Cable	1	10	Yes	0	Supplied by client
3	RF Cable	1	1.5	Yes	0	Supplied by client
4	RF Cable	1	1.5	Yes	0	Supplied by client
5	GND Cable	1	3	No	0	Provided by Lab
6	RF Cable	1	3	No	0	Supplied by client
7	GND Cable	1	3	No	0	Provided by Lab
8	RF Cable	1	3	No	0	Supplied by client

### 3.3 Test Mode Applicability and Tested Channel Detail

#### Band n26:

Following channel(s) was (were) selected for the final test as listed below:

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	173300	866.5	5MHz	QPSK/16QAM/64QAM/256QAM	Full RB
Frequency Stability	173300	866.5	5MHz	QPSK	Full RB
Occupied Bandwidth	173300	866.5	5MHz	QPSK/16QAM/64QAM/256QAM	Full RB
Emission Mask	173300	866.5	5MHz	QPSK	Full RB
Conducted Emission	173300	866.5	5MHz	QPSK	Full RB
Radiated Emission	173300	866.5	5MHz	QPSK	Full RB

#### NOTE:

The product is a base station, only test type full RB. All supported modulation types were evaluated. The Worst case of QPSK was selected. Therefore, the Frequency Stability, Condcudeted Emission and Radiated Emission were presented under QPSK mode only.

#### Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
Output Power	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Frequency Stability	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Occupied Bandwidth	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Emission Mask	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Conducted Emission	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Radiated Emission	25deg. C, 75%RH	120Vac, 60Hz	Tom Yang

Note: Above input power with the AC/DC PSU used during testing.

### **3.4 General Description of Applied Standards**

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**Test Standard:**

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 90, Subpart S**

**ANSI/TIA/EIA-603-E 2016**

**ANSI 63.26-2015**

All test items have been performed and recorded as per the above standards.

**References Test Guidance:**

**KDB 971168 D01 Power Meas License Digital Systems v03r01**

All test items have been performed and recorded as per the above standards and KDB test guidance.

## 4 Test Types and Results

### 4.1 Output Power Measurement

#### 4.1.1 Limits of Output Power Measurement and Antenna Height

According to 90.635 (a), the effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

#### 4.1.2 Test Procedures

EIRP / ERP Measurement:

Conducted Power Measurement:

- A spectrum analyzer was used on the output port of the EUT and recorded output power from the spectrum analyzer.
- The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = \text{PMeas} + \text{GT}$$

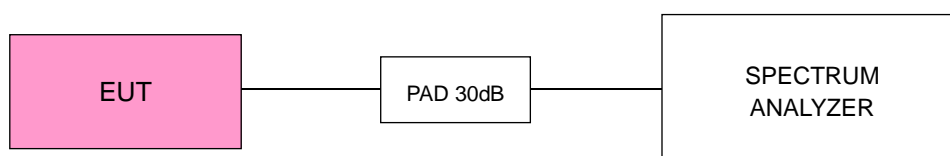
$$\text{ERP} = \text{PMeas} + \text{GT} - 2.15$$

Where ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, e.g., dBm or dBW)

PMeas : measured transmitter output power or PSD, in dBm or dBW

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

#### 4.1.3 Test Setup



#### 4.1.4 Test Results

##### 5GNR Band 26

Channel Number	Freq. (MHz)	QPSK							PASS /FAIL
		Conducted Average Power(dBm)		Total	Directional Gain (dBi)	ERP(dBm)	ERP(W)	Limit (W)	
		ANT2	ANT3						
173300	866.5	42.76	42.72	45.75	16.00	59.60	912.01	1000.00	PASS

Channel Number	Freq. (MHz)	16QAM							PASS /FAIL
		Conducted Average Power(dBm)		Total	Directional Gain (dBi)	ERP(dBm)	ERP(W)	Limit (W)	
		ANT2	ANT3						
173300	866.5	42.67	42.69	45.69	16.00	59.54	899.50	1000.00	PASS

Channel Number	Freq. (MHz)	64QAM							PASS /FAIL
		Conducted Average Power(dBm)		Total	Directional Gain (dBi)	ERP(dBm)	ERP(W)	Limit (W)	
		ANT2	ANT3						
173300	866.5	42.65	42.68	45.68	16.00	59.53	897.43	1000.00	PASS

Channel Number	Freq. (MHz)	256QAM							PASS /FAIL
		Conducted Average Power(dBm)		Total	Directional Gain (dBi)	ERP(dBm)	ERP(W)	Limit (W)	
		ANT2	ANT3						
173300	866.5	42.61	42.56	45.60	16.00	59.45	881.05	1000.00	PASS

## 4.2 Modulation characteristics Measurement

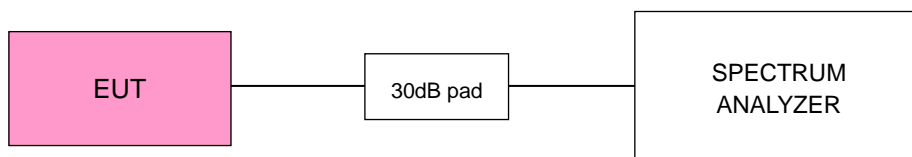
### 4.2.1 Limits of Modulation characteristics

N/A

### 4.2.2 Test Procedure

Connect the EUT to spectrum analyzer. The frequency band is set as EUT supported modulation and channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

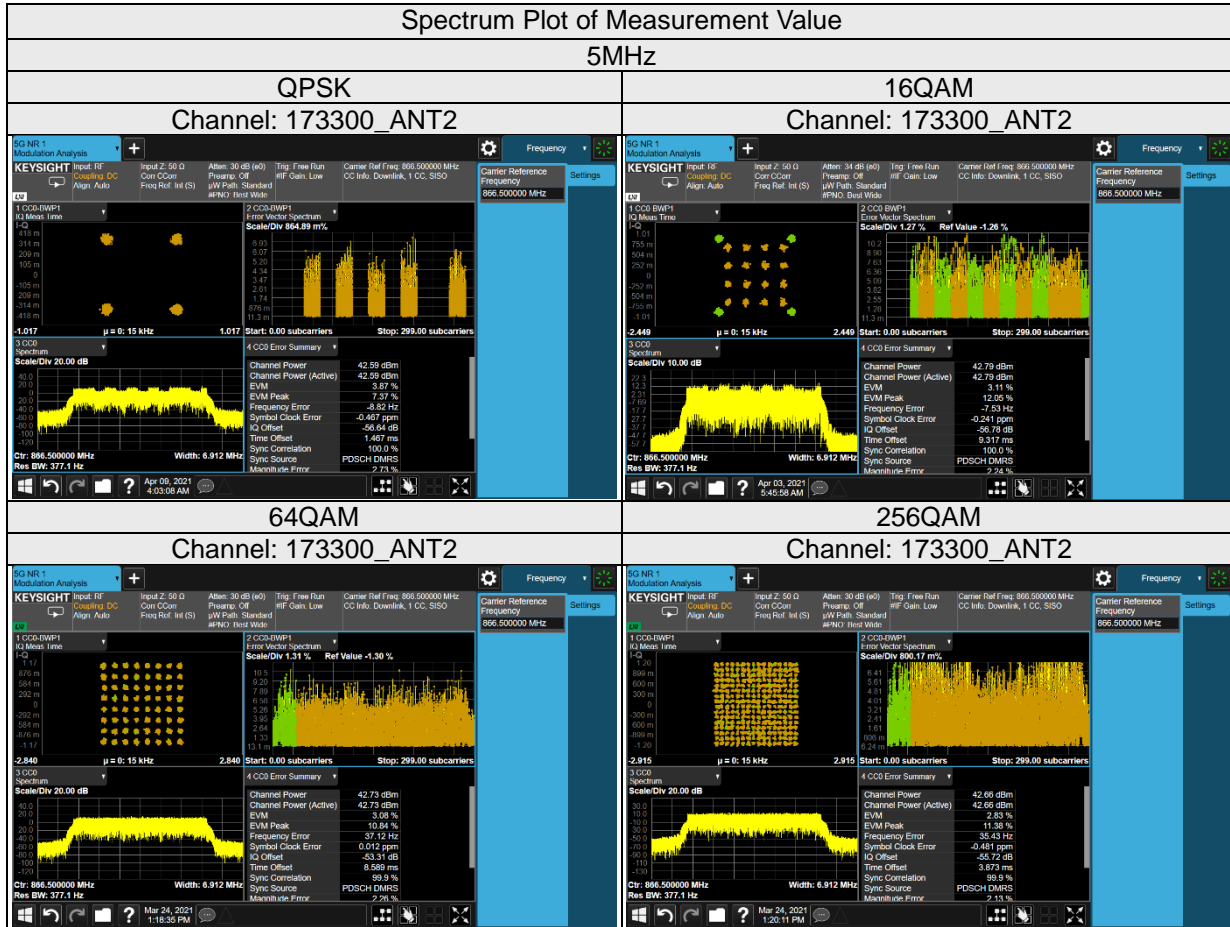
### 4.2.3 Test Setup



### 4.2.4 Test Results

#### Band n26

### Spectrum Plot of Measurement Value





### 4.3 Frequency Stability Measurement

#### 4.3.1 Limits of Frequency Stability Measurement

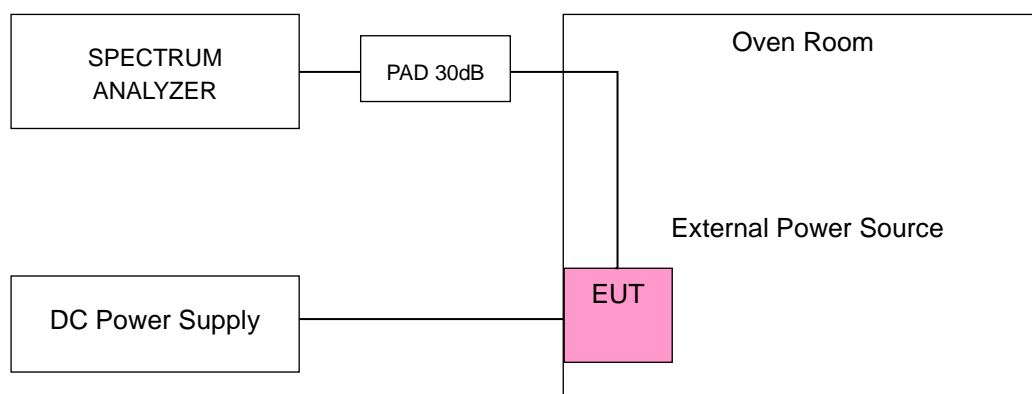
Follow the 90.213(a), 1.5ppm is for base and fixed station. 2.5 ppm is for mobile station.

#### 4.3.2 Test Procedure

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5$  °C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded from the spectrum analyzer.

#### 4.3.3 Test Setup



#### 4.3.4 Test Results

Band n26

ANT2

FREQUENCY ERROR vs. VOLTAGE		Limit ( ppm )	PASS/FAIL
Voltage (Volts)	Test result (ppm)		
	BW: 5MHz		
	866.5MHz		
-40.5	-0.0256	±1.5	PASS
-58.5	-0.0350	±1.5	PASS

FREQUENCY ERROR vs. Temperature		Limit ( ppm )	PASS/FAIL
Temp. (°C)	Test result (ppm)		
	BW: 5MHz		
	866.5MHz		
55	-0.03102	±1.5	PASS
50	-0.02460	±1.5	PASS
40	-0.02578	±1.5	PASS
30	-0.03520	±1.5	PASS
20	-0.02701	±1.5	PASS
10	-0.04439	±1.5	PASS
0	-0.04729	±1.5	PASS
-10	-0.03578	±1.5	PASS
-20	-0.03084	±1.5	PASS
-30	-0.03894	±1.5	PASS
-40	-0.0245	±1.5	PASS



ANT3

FREQUENCY ERROR vs. VOLTAGE		Limit ( ppm )	PASS/FAIL
Voltage (Volts)	Test result (ppm)		
	BW: 5MHz		
-40.5	-0.0420	±1.5	PASS
-58.5	-0.0378	±1.5	PASS

FREQUENCY ERROR vs. Temperature		Limit ( ppm )	PASS/FAIL
Temp. (°C)	Test result (ppm)		
	BW: 5MHz		
55	-0.02567	±1.5	PASS
50	-0.02950	±1.5	PASS
40	-0.03619	±1.5	PASS
30	-0.02876	±1.5	PASS
20	-0.04672	±1.5	PASS
10	-0.04210	±1.5	PASS
0	-0.02539	±1.5	PASS
-10	-0.02991	±1.5	PASS
-20	-0.02811	±1.5	PASS
-30	-0.02800	±1.5	PASS
-40	-0.0290	±1.5	PASS

## 4.4 Occupied Bandwidth Measurement

### 4.4.1 Limits of Occupied Bandwidth Measurement

The frequency shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 4.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with  $RBW \geq 1\% \times OBW$  and  $VBW \geq 3 \times VBW$ .

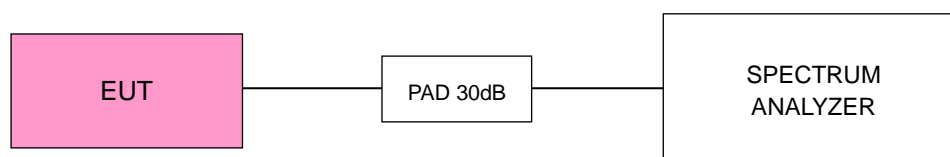
#### 26 dB Bandwidth Measurement:

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26dB below the transmitter power.

#### Occupied Bandwidth Measurement:

Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

### 4.4.3 Test Setup



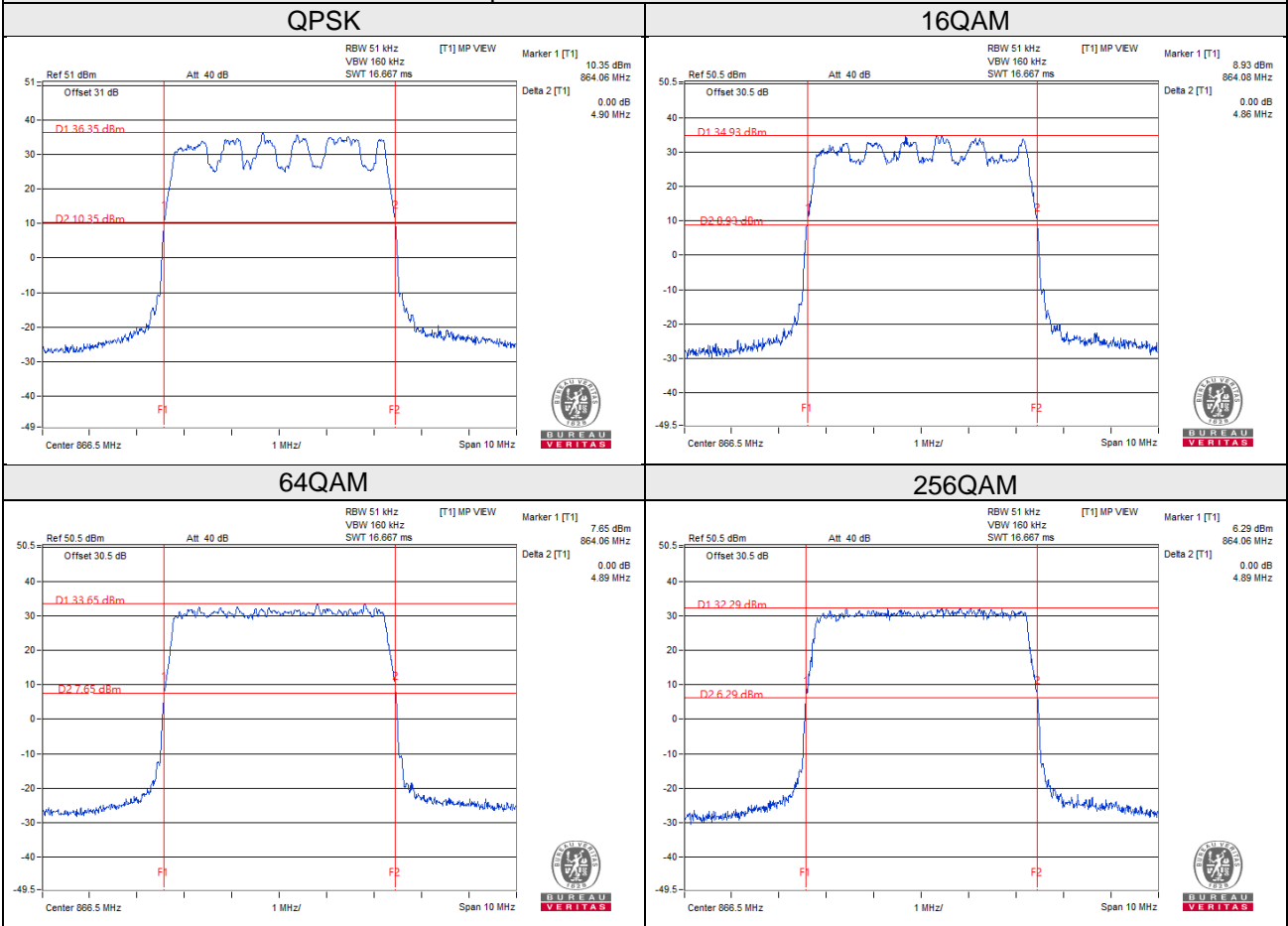


### 4.4.4 Test Result (-26dB Bandwidth)

Channel Number	Freq. (MHz)	-26dBc Bandwidth (MHz)							
		ANT2				ANT3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
173300	866.5	4.90	4.86	4.89	4.89	4.89	4.88	4.89	4.88

#### ANT2

Spectrum Plot of Worst Value



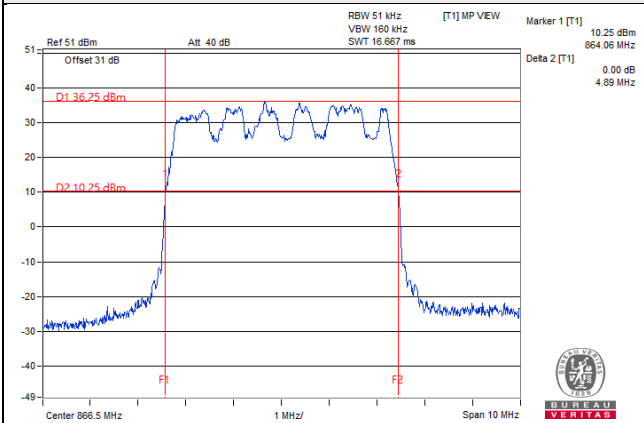


BUREAU  
VERITAS

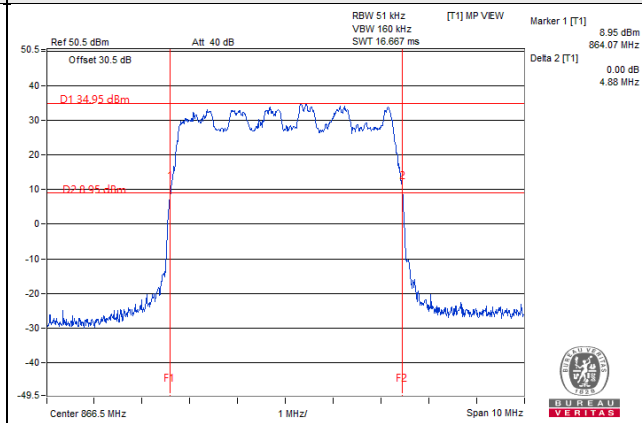
ANT3

### Spectrum Plot of Worst Value

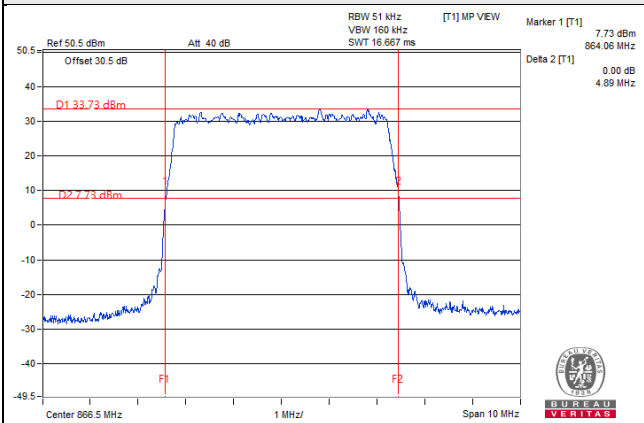
#### QPSK



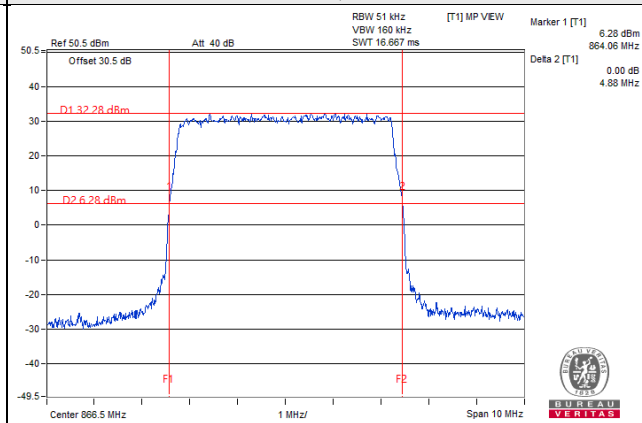
#### 16QAM



#### 64QAM



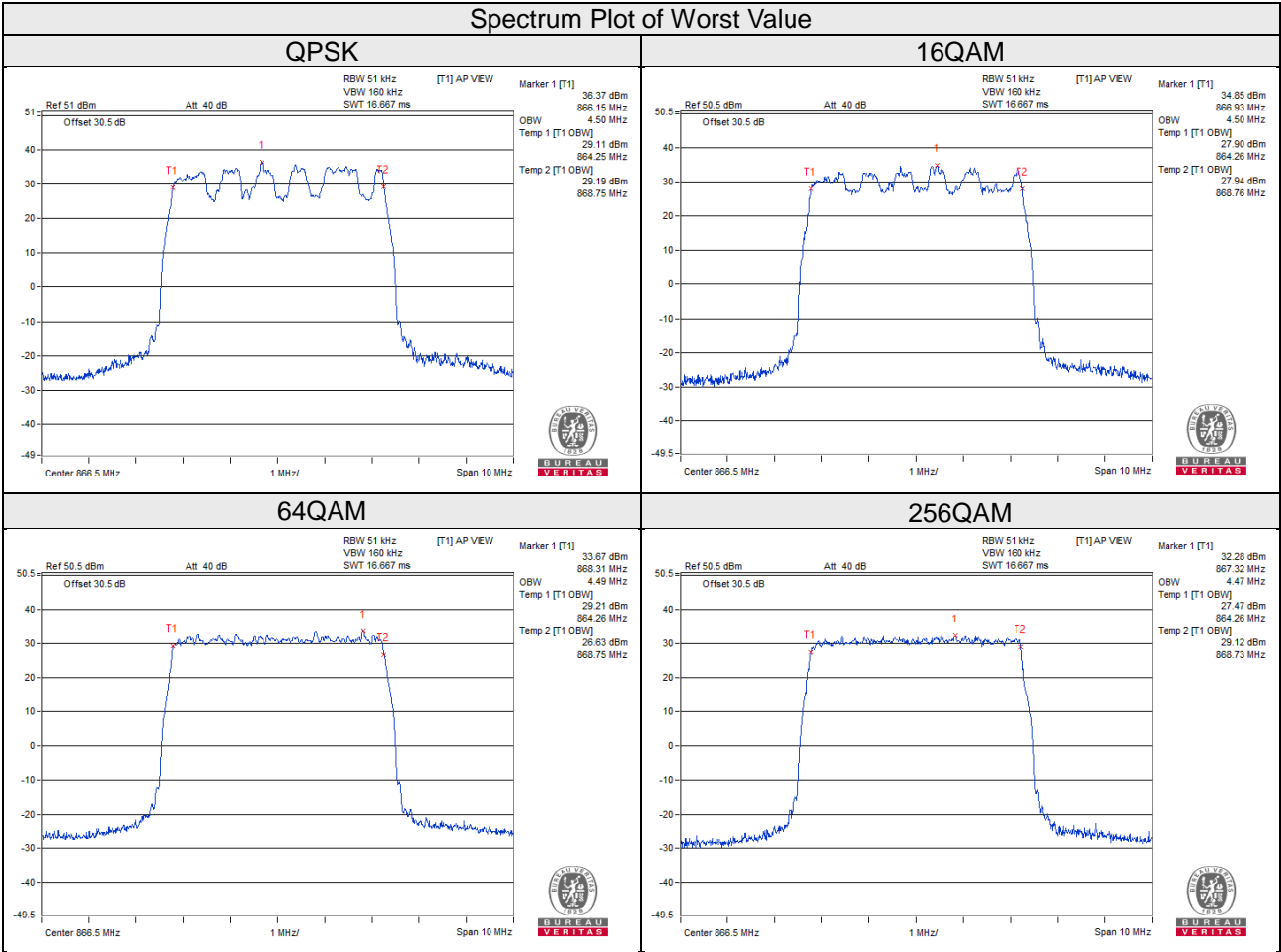
#### 256QAM



### 4.4.5 Test Result (Occupied Bandwidth)

Channel Number	Freq. (MHz)	99% Occupied Bandwidth (MHz)							
		ANT2				ANT3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
173300	866.5	4.50	4.50	4.49	4.47	4.49	4.50	4.48	4.47

#### ANT2

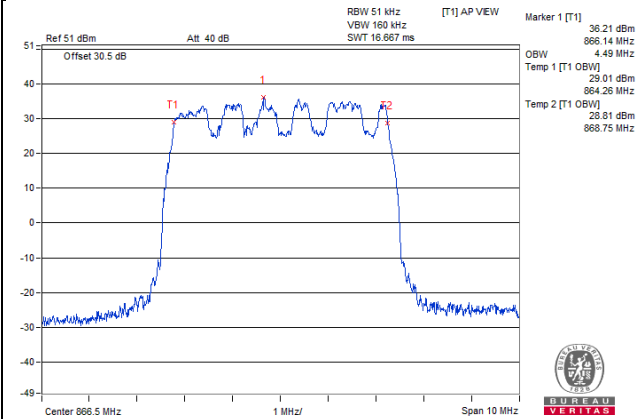




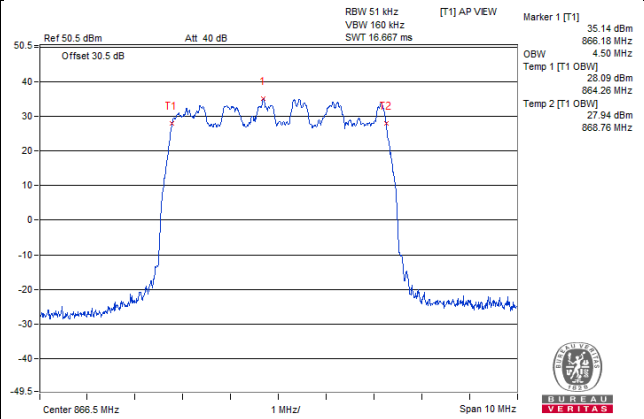
ANT3

Spectrum Plot of Worst Value

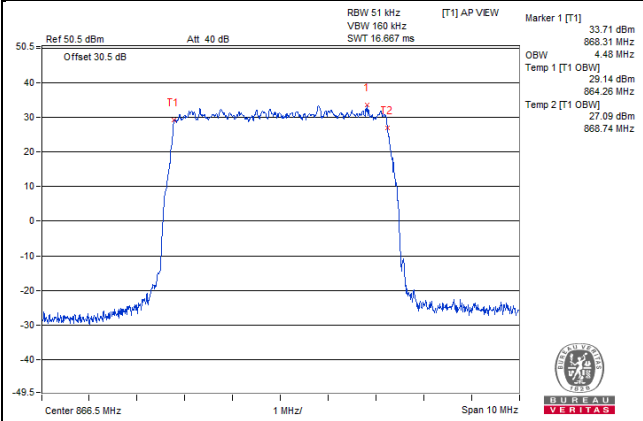
QPSK



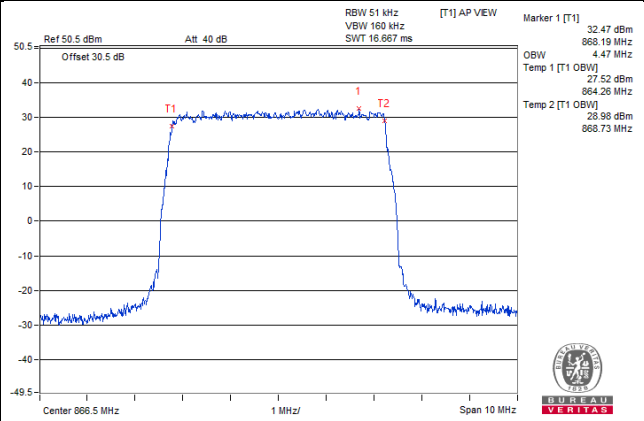
16QAM



64QAM



256QAM





## 4.5 Emission Mask Measurement

### 4.5.1 Limits of Emission Mask Measurement

Per 90.210, equipment used in 809-824/854-869 MHz licensed band to EA or non-EA systems shall comply with the emission mask provisions of §90.691.

Per 90.691, Emission mask requirements

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

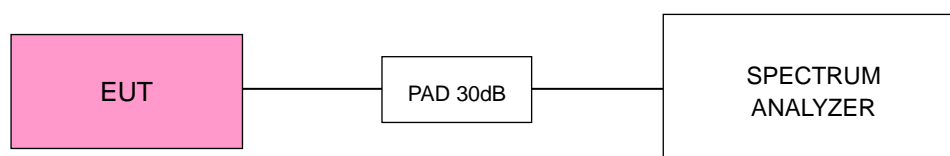
(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{ Log}_{10}(f/6.1)$  decibels or  $50 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

### 4.5.2 Test Procedures

1. 30dB attenuation pad is connected with spectrum analyzer. RBW=300Hz and VBW=900Hz is used for measurement.
2. Record the test plot.

### 4.5.3 Test Setup

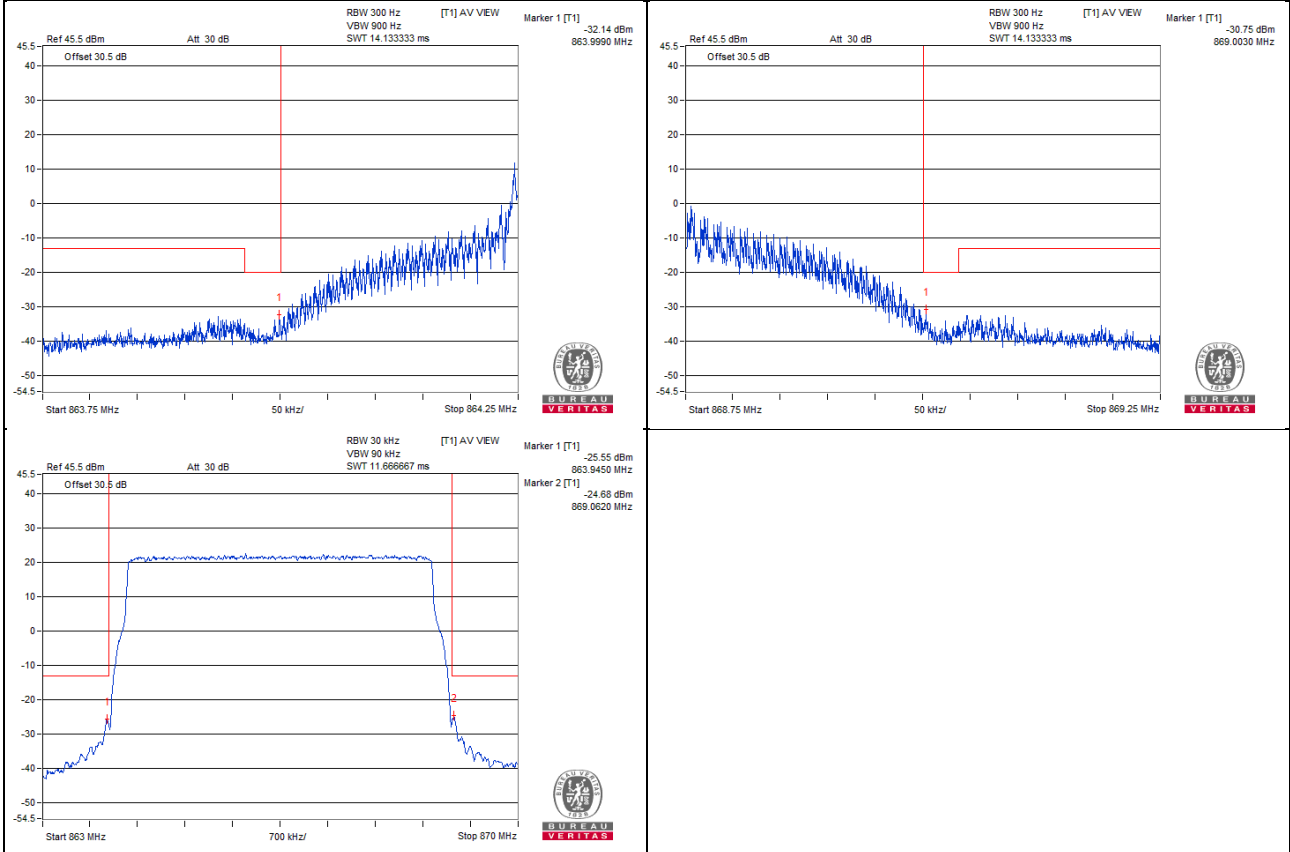


### 4.5.4 Test Results

Band n26

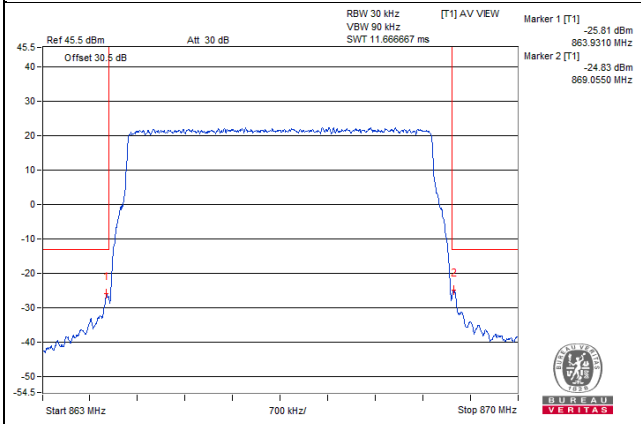
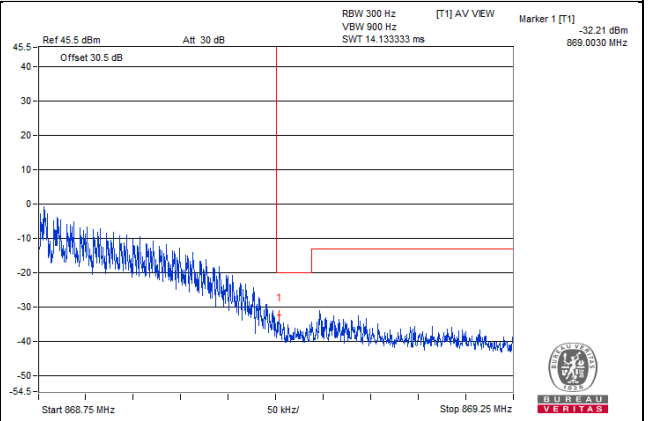
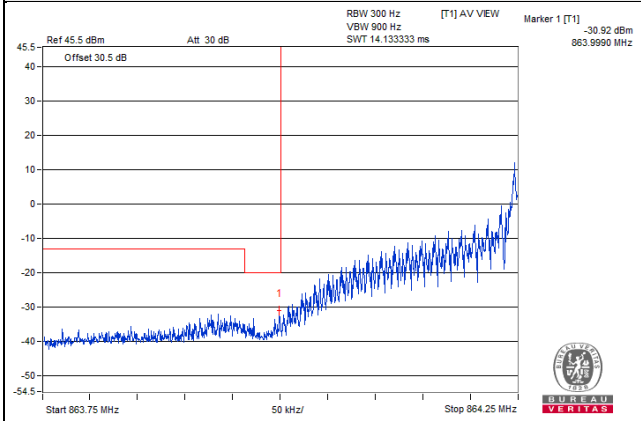
Channel Bandwidth 5MHz QPSK

ANT2 Channel 173300 FULL RB





### ANT3 Channel 173300 FULL RB



## 4.6 Conducted Spurious Emissions

### 4.6.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$ .

Note:

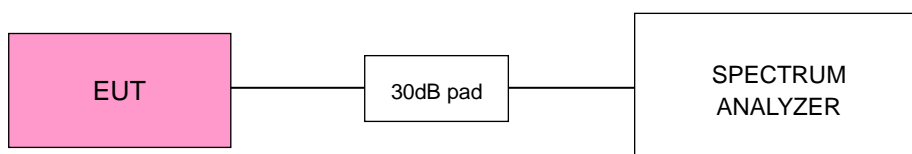
This device can be implement MIMO function, so the limit of spurious emissions needs to be reduced by  $10\log(\text{NumbersAnt})$  according to FCC KDB 662911 D01 guidance.

{2TX: The limit is adjusted to  $-13\text{dBm} - 10*\log(2) = -16.01\text{dBm}$ .}

### 4.6.2 Test Procedure

- a. When the spectrum scanned from 9kHz to the tenth harmonic of the highest fundamental frequency, it shall be connected to the 30dB pad attenuated the carried frequency. The spectrum set RBW: 100kHz and  $\text{VBW}=3*\text{RBW}$  is used for measurement.
- b. Record the test plot.

### 4.6.3 Test Setup

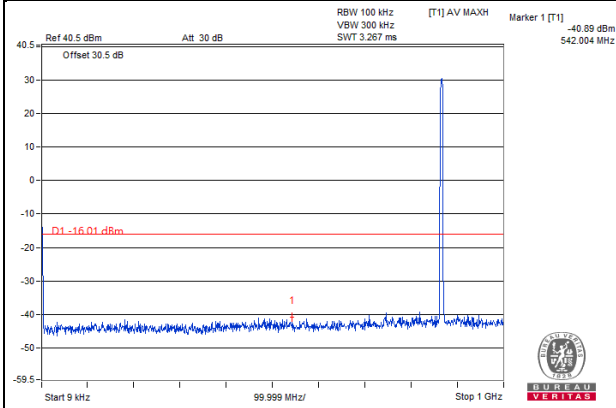


#### 4.6.4 Test Results

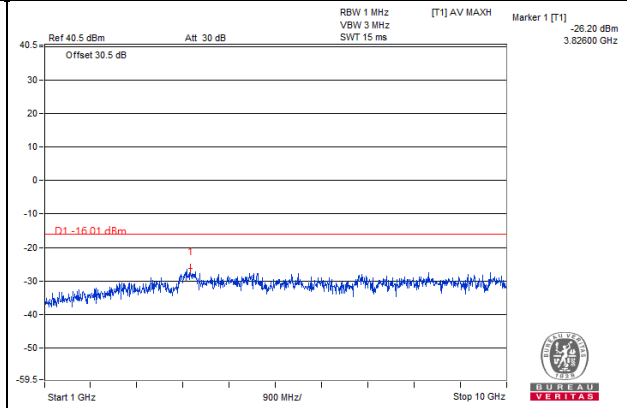
5G NR Band 26 Channel Band width: 5MHz

ANT2\_Channel 173300

Frequency Range : 9kHz~1GHz

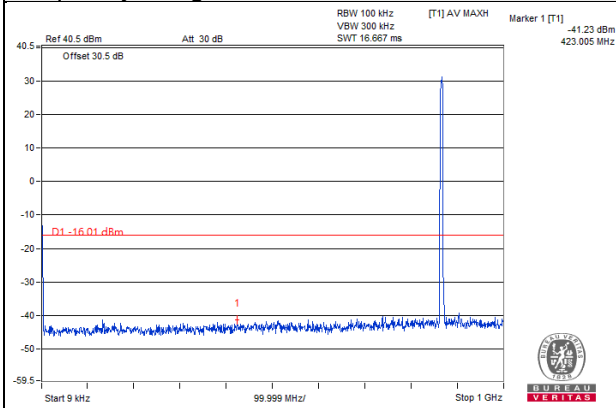


Frequency Range : 1GHz~10GHz

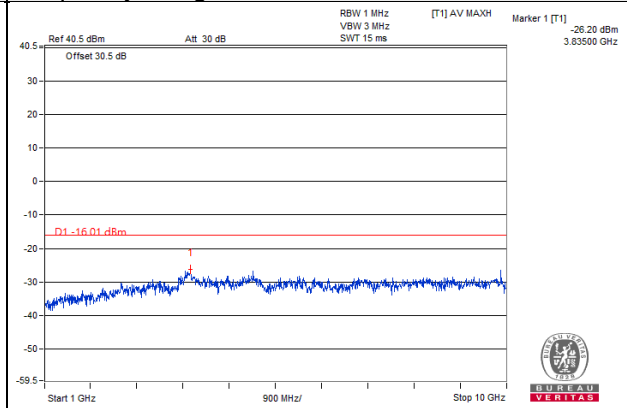


ANT3\_Channel 173300

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Note: The signal of 9kHz is IF signal from test instrument.

## 4.7 Radiated Emission Measurement

### 4.7.1 Limits of Radiated Emission Measuremen

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

### 4.7.2 Test Procedure

- a. The field strength was measured with Spectrum Analyzer.
- b. Measurement in the semi-anechoic chamber, EUT placed on the 0.8m/1.5m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor.
- c. Perform a field strength measurement and then mathematically convert the measured field strength level to EIRP level.
- d. Follow ANSI 63.26 section 5.2.7 d), Emission Value (dBm) = Read Value (dB $\mu$ V/m) + Correction Factor @ 3m
- e. Correction Factor (dB) @ 3m =  $20\log(D) - 104.8$ ; where D is the measurement distance @3m =  $-95.26\text{dB}$

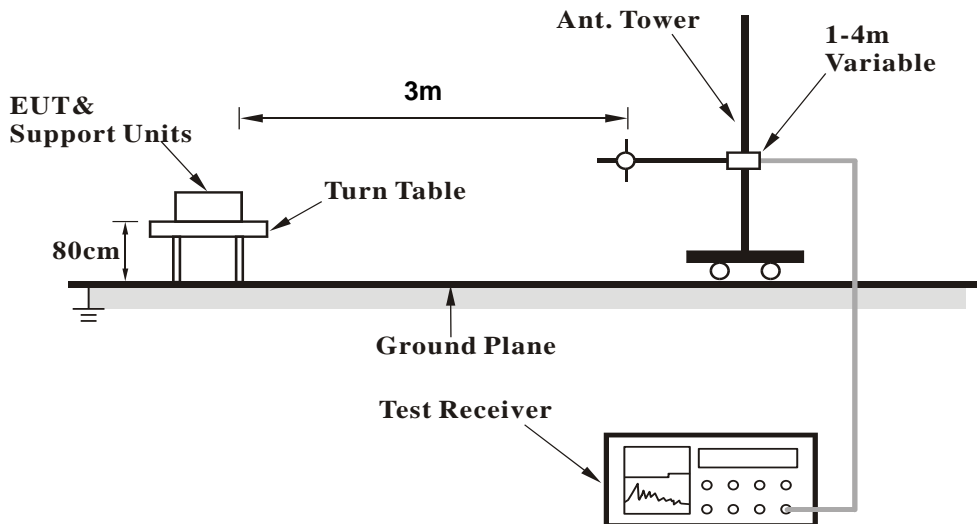
**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 4.7.3 Deviation from Test Standard

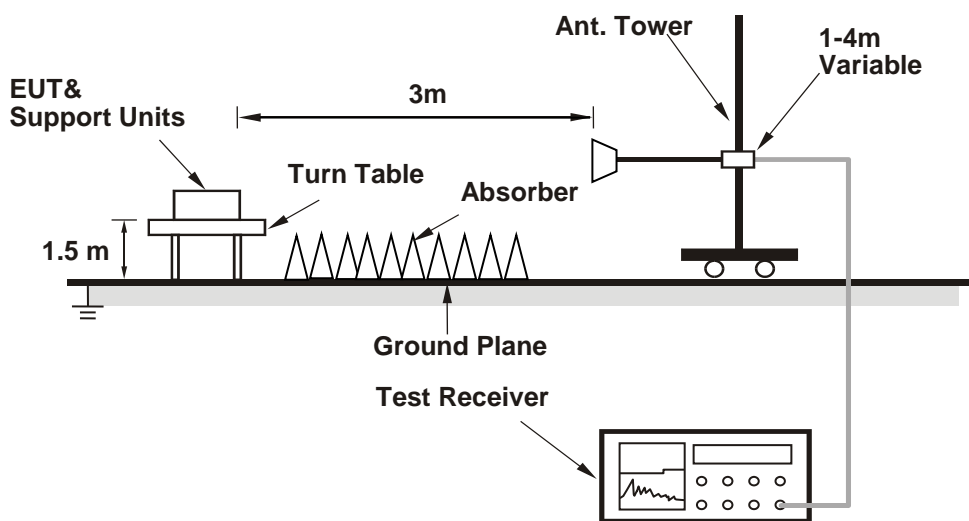
No deviation.

#### 4.7.4 Test Setup

##### For Radiated emission below 1GHz



##### For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.7.5 Test Results

Below 1GHz

5MHz

Test Frequency	866.5 MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dB $\mu$ V/m)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	31.56	24.18	-95.26	-71.08	-13	-58.08
2	97.85	25.63	-95.26	-69.63	-13	-56.63
3	183.25	26.85	-95.26	-68.41	-13	-55.41
4	297.63	27.79	-95.26	-67.47	-13	-54.47
5	371.28	29.54	-95.26	-65.72	-13	-52.72
6	541.67	31.31	-95.26	-63.95	-13	-50.95

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dB $\mu$ V/m)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	37.68	24.59	-95.26	-70.67	-13	-57.67
2	105.73	25.98	-95.26	-69.28	-13	-56.28
3	193.25	27.09	-95.26	-68.17	-13	-55.17
4	263.41	27.98	-95.26	-67.28	-13	-54.28
5	343.29	29.77	-95.26	-65.49	-13	-52.49
6	493.11	31.66	-95.26	-63.60	-13	-50.60

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB $\mu$ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @3m.





Above 1GHz

Test Frequency	866.5 MHz	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB $\mu$ V/m)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1733	30.87	-95.26	-64.39	-13	-51.39
2	2599.5	31.51	-95.26	-63.75	-13	-50.75
3	3466	32.58	-95.26	-62.68	-13	-49.68
4	4332.5	33.74	-95.26	-61.52	-13	-48.52
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB $\mu$ V/m)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1733	30.69	-95.26	-64.57	-13	-51.57
2	2599.5	31.82	-95.26	-63.44	-13	-50.44
3	3466	32.49	-95.26	-62.77	-13	-49.77
4	<b>4332.5</b>	<b>34.36</b>	<b>-95.26</b>	<b>-60.90</b>	<b>-13</b>	<b>-47.90</b>

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB $\mu$ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @3m.



## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).



## Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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