FCC Test Report (PART 27)

Report No.:	RFBEOO-WTW-P21020574
FCC ID:	MADG060708-50-01B
Test Model:	G060708-50-01B
Received Date:	Feb. 26, 2021
Test Date:	Mar. 24 to May 23, 2021
Issued Date:	July 13, 2021
Applicant:	Microelectronics Technology Inc.
Address:	No. 1, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan, R.O.C.
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	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. 24 to May 23, 2021
Standards:	FCC Part 27, Subpart N / H FCC Part 2

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 27, Subpart N / H & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(c)(3)	Equivalent Isotropically radiated power	PASS	Meet the requirement of limit.
2.1047	Modulation characteristics	PASS	Meet the requirement
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	PASS	Meet the requirement of limit.
2.1049 27.53	Occupied Bandwidth	PASS	Meet the requirement of limit.
27.53(g)	Band Edge Measurements	PASS	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	PASS	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(g)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -47.59dB at 3612.5MHz.

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) (±)
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 Single Carrier 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. 29, 2020	Apr. 28, 2021
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: Apr. 17, 2021

For CA Mode 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	210201	May 13, 2021	May 12, 2022
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 23, 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 to -58.5V			
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM			
Modulation Technology	5G NR FDD			
Operating Frequency	Band n29	ANT0	Channel Bandwidth: 5MHz	719.5MHz ~725.5MHz
		ANT1		
		ANT0	Channel Bandwidth: 10MHz	722MHz ~723MHz
		ANT1		
	Band n71	ANT0	Channel Bandwidth: 5MHz	619.5MHz ~649.5MHz
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 10MHz	622MHz ~647MHz
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 15MHz	624.5MHz ~644.5MHz
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 20MHz	627MHz ~642MHz
		ANT1		
		ANT2		
		ANT3		

Max. ERP Power	Band n29	ANT0	Channel Bandwidth: 5MHz	912.01 W/MHz (QPSK)
		ANT1		
		ANT0	Channel Bandwidth: 10MHz	459.20 W/MHz (QPSK)
		ANT1		
		ANT0	Channel Bandwidth: 5MHz+5MHz CA-NC Non-Contiguous	431.52 W/MHz (QPSK)
		ANT1		
	Band n71	ANT0	Channel Bandwidth: 5MHz	919.56 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 10MHz	463.26 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 15MHz	304.51 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 20MHz	230.32 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 5MHz+5MHz CA Contiguous	423.71 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 5MHz+5MHz CA-NC Non-Contiguous	422.74 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		
		ANT0	Channel Bandwidth: 15MHz+20MHz CA Contiguous	137.34 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		

Emission Designator	Band n29	ANT0	Channel Bandwidth: 5MHz	QPSK: 4M52G7D
				16QAM: 4M51D7W
		ANT1		64QAM: 4M48D7W
				256QAM: 4M48D7W
		ANT0	Channel Bandwidth: 10MHz	QPSK: 9M34G7D
				16QAM: 9M26D7W
		ANT1		64QAM: 9M32D7W
				256QAM: 9M30D7W
		ANT0	Channel Bandwidth: 5MHz+5MHz CA-NC Non-Contiguous	QPSK: 9M00G7D
				16QAM: 8M99D7W
		ANT1		64QAM: 8M95D7W
				256QAM: 8M93D7W
	Band n71	ANT0	Channel Bandwidth: 5MHz	QPSK: 4M52G7D
		ANT1		16QAM: 4M51D7W
		ANT2		64QAM: 4M49D7W
		ANT3		256QAM: 4M48D7W
		ANT0	Channel Bandwidth: 10MHz	QPSK: 9M33G7D
		ANT1		16QAM: 9M24D7W
		ANT2		64QAM: 9M32D7W
		ANT3		256QAM: 9M30D7W
		ANT0	Channel Bandwidth: 15MHz	QPSK: 14M1G7D
		ANT1		16QAM: 14M1D7W
		ANT2		64QAM: 14M1D7W
		ANT3		256QAM: 14M1D7W
		ANT0	Channel Bandwidth: 20MHz	QPSK: 19M0G7D
		ANT1		16QAM: 19M0D7W
		ANT2		64QAM: 18M9D7W
		ANT3		256QAM: 19M0D7W
		ANT0	Channel Bandwidth: 5MHz+5MHz CA Contiguous	QPSK: 9M46G7D
		ANT1		16QAM: 9M46D7W
		ANT2		64QAM: 9M46D7W
		ANT3		256QAM: 9M44D7W
		ANT0	Channel Bandwidth: 5MHz+5MHz CA-NC Non-Contiguous	QPSK: 9M03G7D
		ANT1		16QAM: 9M02D7W
		ANT2		64QAM: 8M98D7W
		ANT3		256QAM: 8M97D7W
		ANT0	Channel Bandwidth: 15MHz+20MHz CA Contiguous	QPSK: 34M0G7D
		ANT1		16QAM: 34M0D7W
		ANT2		64QAM: 33M9D7W
		ANT3		256QAM: 33M8D7W
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			

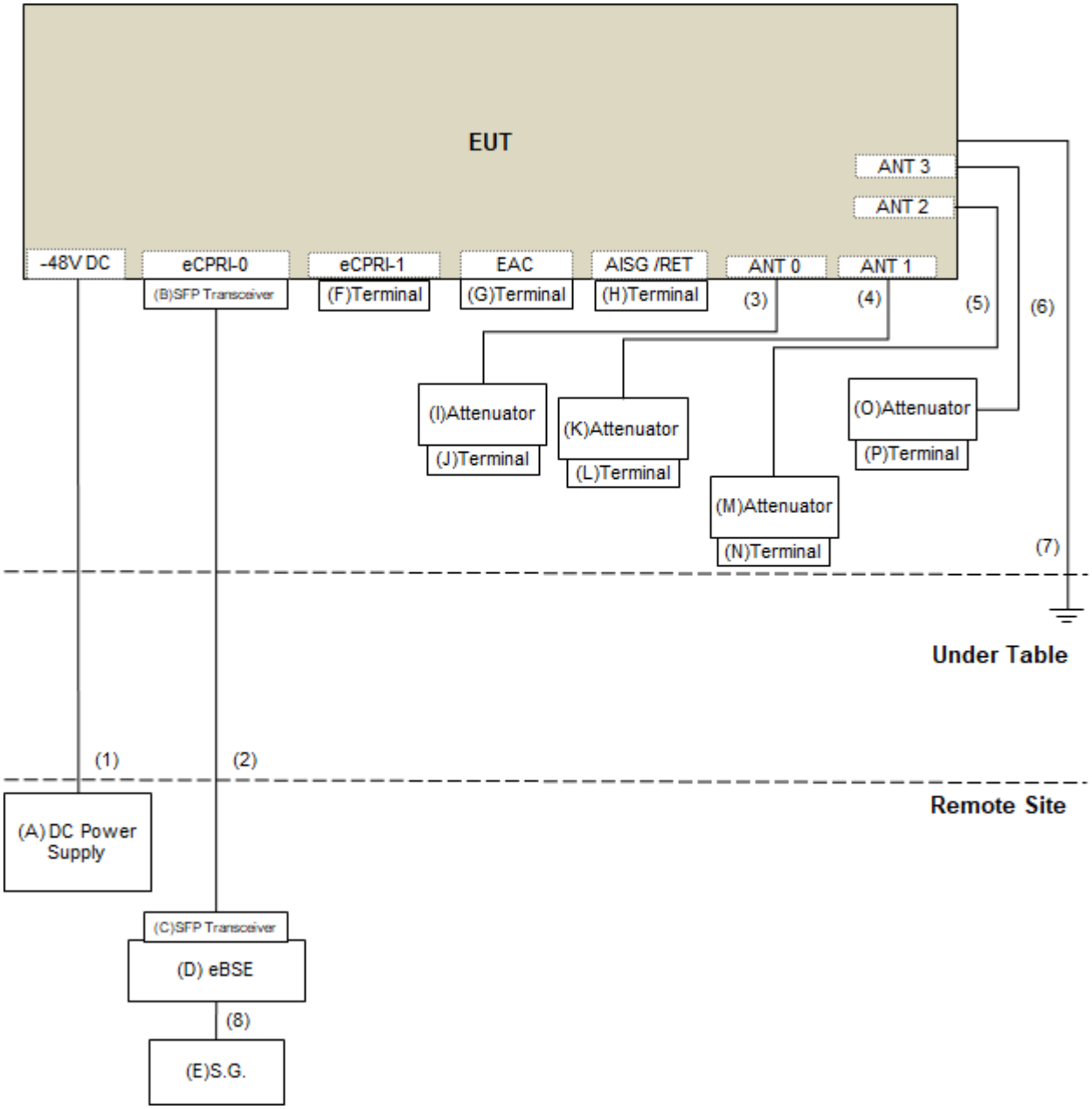
Note:

1. The EUT incorporates a MIMO function.

Band n29			
Channel Bandwidth	Modulation	TX Only configuration	
5MHz	QPSK, 16QAM, 64QAM, 256QAM	2TX	NA
10MHz	QPSK, 16QAM, 64QAM, 256QAM	2TX	NA
Band n71			
Channel Bandwidth	Modulation	TX & RX configuration	
5MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
10MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
15MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
20MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	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 n29:

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

Test Item	Available Frequency (MHz)	Tested Frequency (MHz)	Channel Bandwidth	Modulation
Output Power	719.5 to 725.5	719.5, 722.5, 725.5	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		722, 722.5, 723	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK, 16QAM, 64QAM, 256QAM
Frequency Stability	719.5 to 725.5	719.5, 725.5	5MHz Single Carrier	QPSK
		722, 723	10MHz Single Carrier	QPSK
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
Emission Bandwidth	719.5 to 725.5	719.5, 722.5, 725.5	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		722, 722.5, 723	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK, 16QAM, 64QAM, 256QAM
Channel Edge	719.5 to 725.5	719.5 , 725.5	5MHz Single Carrier	QPSK
		722 , 723	10MHz Single Carrier	QPSK
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
Peak To Average Ratio	719.5 to 725.5	719.5, 722.5, 725.5	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		722, 722.5, 723	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK, 16QAM, 64QAM, 256QAM
Conducted Emission	719.5 to 725.5	719.5, 722.5, 725.5	5MHz Single Carrier	QPSK
		722, 722.5, 723	10MHz Single Carrier	QPSK
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
Radiated Emission Below 1GHz	719.5 to 725.5	719.5, 722.5, 725.5	5MHz Single Carrier	QPSK
		722, 722.5, 723	10MHz Single Carrier	QPSK
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
Radiated Emission Above 1GHz	719.5 to 725.5	719.5, 722.5, 725.5	5MHz Single Carrier	QPSK
		722, 722.5, 723	10MHz Single Carrier	QPSK
		719.5+725.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK

NOTE:

1. 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, Conducted Emission and Radiated Emission were performed under QPSK mode only.

Band n71:

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

Test Item	Available Frequency (MHz)	Tested Frequency (MHz)	Channel Bandwidth	Modulation
Output Power	619.5 to 649.5	619.5, 634.5, 649.5	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		622, 634.5, 647	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		624.5, 634.5, 644.5	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		627, 634.5, 642	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		619.5+624.5, 632+637, 644.5+649.5	5MHz+5MHz CA Contiguous	QPSK, 16QAM, 64QAM, 256QAM
		619.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK, 16QAM, 64QAM, 256QAM
		624.5+642	15MHz+20MHz CA Contiguous	QPSK, 16QAM, 64QAM, 256QAM
Frequency Stability	619.5 to 649.5	619.5, 649.5	5MHz Single Carrier	QPSK
		622 , 647	10MHz Single Carrier	QPSK
		624.5, 644.5	15MHz Single Carrier	QPSK
		627, 642	20MHz Single Carrier	QPSK
		619.5+624.5 , 644.5+649.5	5MHz+5MHz CA Contiguous	QPSK
		619.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
		624.5+642	15MHz+20MHz CA Contiguous	QPSK
Emission Bandwidth	619.5 to 649.5	619.5, 634.5, 649.5	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		622, 634.5, 647	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		624.5, 634.5, 644.5	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		627, 634.5, 642	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		619.5+624.5, 632+637, 644.5+649.5	5MHz+5MHz CA Contiguous	QPSK, 16QAM, 64QAM, 256QAM
		619.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK, 16QAM, 64QAM, 256QAM
		624.5+642	15MHz+20MHz CA Contiguous	QPSK, 16QAM, 64QAM, 256QAM

Test Item	Available Frequency (MHz)	Tested Frequency (MHz)	Channel Bandwidth	Modulation
Channel Edge	619.5 to 649.5	619.5, 649.5	5MHz Single Carrier	QPSK
		622, 647	10MHz Single Carrier	QPSK
		624.5, 644.5	15MHz Single Carrier	QPSK
		627, 642	20MHz Single Carrier	QPSK
		624.5+642	5MHz+5MHz CA Contiguous	QPSK
		619.5+624.5, 644.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
		624.5+642	15MHz+20MHz CA Contiguous	QPSK
Peak To Average Ratio	619.5 to 649.5	619.5, 634.5, 649.5	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		622, 634.5, 647	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		624.5, 634.5, 644.5	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		627, 634.5, 642	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		619.5+624.5, 632+637, 644.5+649.5	5MHz+5MHz CA Contiguous	QPSK, 16QAM, 64QAM, 256QAM
		619.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK, 16QAM, 64QAM, 256QAM
		624.5+642	15MHz+20MHz CA Contiguous	QPSK, 16QAM, 64QAM, 256QAM
Conducted Emission	619.5 to 649.5	619.5, 634.5, 649.5	5MHz Single Carrier	QPSK
		622, 634.5, 647	10MHz Single Carrier	QPSK
		624.5, 634.5, 644.5	15MHz Single Carrier	QPSK
		627, 634.5, 642	20MHz Single Carrier	QPSK
		619.5+624.5, 632+637, 644.5+649.5	5MHz+5MHz CA Contiguous	QPSK
		619.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
		624.5+642	15MHz+20MHz CA Contiguous	QPSK

Test Item	Available Frequency (MHz)	Tested Frequency (MHz)	Channel Bandwidth	Modulation
Radiated Emission Below 1GHz	619.5 to 649.5	619.5, 634.5, 649.5	5MHz Single Carrier	QPSK
		622, 634.5, 647	10MHz Single Carrier	QPSK
		624.5, 634.5, 644.5	15MHz Single Carrier	QPSK
		627, 634.5, 642	20MHz Single Carrier	QPSK
		619.5+624.5, 632+637, 644.5+649.5	5MHz+5MHz CA Contiguous	QPSK
		619.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
		624.5+642	15MHz+20MHz CA Contiguous	QPSK
Radiated Emission Above 1GHz	619.5 to 649.5	619.5, 634.5, 649.5	5MHz Single Carrier	QPSK
		622, 634.5, 647	10MHz Single Carrier	QPSK
		624.5, 634.5, 644.5	15MHz Single Carrier	QPSK
		627, 634.5, 642	20MHz Single Carrier	QPSK
		619.5+624.5, 632+637, 644.5+649.5	5MHz+5MHz CA Contiguous	QPSK
		619.5+649.5	5MHz+5MHz CA-NC Non-Contiguous	QPSK
		624.5+642	15MHz+20MHz CA Contiguous	QPSK

NOTE:

1. 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, Conducted Emission and Radiated Emission were performed 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
Modulation characteristics	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Frequency Stability	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Emission Bandwidth	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Band Edge	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Peak To Average Ratio	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 Ryan Du

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 and references:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27, Subpart N / H

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

The radiated peak output power shall be according to the specific rule Part 27.50(c)(3) that are limited to ERP of 1000 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

4.1.2 Test Procedures

EIRP / ERP Measurement:

Conducted Power Measurement:

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

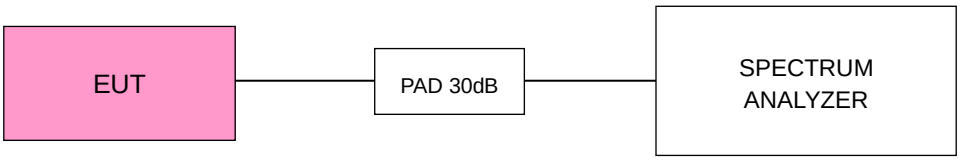
   EIRP = PMeas + GT
   ERP = PMeas + GT- 2.15

   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

CONDUCTED POWER MEASUREMENT:



4.1.4 Test Results

Band n29
Single Carrier

5MHz

Channel Number	Freq. (MHz)	QPSK							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
143900	719.5	40.78	40.70	43.75	18.00	59.60	912.01	1000.00	PASS
144500	722.5	40.74	40.69	43.73	18.00	59.58	907.82	1000.00	PASS
145100	725.5	40.69	40.77	43.74	18.00	59.59	909.91	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	QPSK							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
144400	722	37.75	37.77	40.77	18.00	56.62	459.20	1000.00	PASS
144500	722.5	37.78	37.68	40.74	18.00	56.59	456.04	1000.00	PASS
144600	723	37.68	37.67	40.69	18.00	56.54	450.82	1000.00	PASS

5MHz

Channel Number	Freq. (MHz)	16QAM							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
143900	719.5	40.55	40.59	43.58	18.00	59.43	877.00	1000.00	PASS
144500	722.5	40.66	40.66	43.67	18.00	59.52	895.36	1000.00	PASS
145100	725.5	40.57	40.60	43.60	18.00	59.45	881.05	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	16QAM							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
144400	722	37.56	37.71	40.65	18.00	56.50	446.68	1000.00	PASS
144500	722.5	37.58	37.60	40.60	18.00	56.45	441.57	1000.00	PASS
144600	723	37.59	37.52	40.57	18.00	56.42	438.53	1000.00	PASS

5MHz

Channel Number	Freq. (MHz)	64QAM							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
143900	719.5	40.54	40.62	43.59	18.00	59.44	879.02	1000.00	PASS
144500	722.5	40.53	40.69	43.62	18.00	59.47	885.12	1000.00	PASS
145100	725.5	40.60	40.64	43.63	18.00	59.48	887.16	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	64QAM							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
144400	722	37.62	37.63	40.64	18.00	56.49	445.66	1000.00	PASS
144500	722.5	37.60	37.56	40.59	18.00	56.44	440.55	1000.00	PASS
144600	723	37.65	37.72	40.70	18.00	56.55	451.86	1000.00	PASS

5MHz

Channel Number	Freq. (MHz)	256QAM							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
143900	719.5	40.53	40.56	43.56	18.00	59.41	872.97	1000.00	PASS
144500	722.5	40.54	40.57	43.57	18.00	59.42	874.98	1000.00	PASS
145100	725.5	40.47	40.51	43.50	18.00	59.35	860.99	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	256QAM							PASS /FAIL
		Conducted Average Power(dBm/MHz)			Directional Gain (dBi)	ERP(dBm/MHz)	ERP(W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	Total					
144400	722	37.55	37.57	40.57	18.00	56.42	438.53	1000.00	PASS
144500	722.5	37.60	37.56	40.59	18.00	56.44	440.55	1000.00	PASS
144600	723	37.67	37.53	40.61	18.00	56.46	442.59	1000.00	PASS

CA-NC Non-Contiguous

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	QPSK							PASS /FAIL
			Conducted Average Power (dBm/MHz)			Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	Total					
143900 + 145100	719.5 + 725.5	Carrier 0	37.54	37.44	40.50	18.00	56.35	431.52	1000.00	PASS
		Carrier 1	37.36	37.37						

Channel Number	Freq. (MHz)	Carrier	16QAM							PASS /FAIL
			Conducted Average Power (dBm/MHz)			Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	Total					
143900 + 145100	719.5 + 725.5	Carrier 0	37.29	37.21	40.31	18.00	56.16	413.05	1000.00	PASS
		Carrier 1	37.22	37.30						

Channel Number	Freq. (MHz)	Carrier	64QAM							PASS /FAIL
			Conducted Average Power (dBm/MHz)			Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	Total					
143900 + 145100	719.5 + 725.5	Carrier 0	37.17	37.16	40.27	18.00	56.12	409.26	1000.00	PASS
		Carrier 1	37.27	37.25						

Channel Number	Freq. (MHz)	Carrier	256QAM							PASS /FAIL
			Conducted Average Power (dBm/MHz)			Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	Total					
143900 + 145100	719.5 + 725.5	Carrier 0	37.27	37.32	40.31	18.00	56.16	413.05	1000.00	PASS
		Carrier 1	37.10	37.18						

Band n71
Single Carrier

5MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
123900	619.5	37.76	37.77	37.69	37.80	43.78	18.00	59.63	917.44	1000.00	PASS
126900	634.5	37.70	37.76	37.78	37.82	43.79	18.00	59.64	919.56	1000.00	PASS
129900	649.5	37.57	37.74	37.69	37.80	43.72	18.00	59.57	906.03	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124400	622	34.68	34.69	34.76	34.77	40.75	18.00	56.60	456.64	1000.00	PASS
126900	634.5	34.66	34.76	34.72	34.76	40.75	18.00	56.60	456.65	1000.00	PASS
129400	647	34.73	34.79	34.82	34.81	40.81	18.00	56.66	463.26	1000.00	PASS

15MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124900	624.5	32.90	32.94	32.96	33.06	38.99	18.00	54.84	304.51	1000.00	PASS
126900	634.5	32.93	32.99	33.00	32.89	38.97	18.00	54.82	303.62	1000.00	PASS
128900	644.5	32.90	32.88	32.92	32.95	38.93	18.00	54.78	300.83	1000.00	PASS

20MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
125400	627	31.71	31.69	31.67	31.76	37.73	18.00	53.58	227.94	1000.00	PASS
126900	634.5	31.72	31.74	31.68	31.72	37.74	18.00	53.59	228.33	1000.00	PASS
128400	642	31.75	31.82	31.69	31.75	37.77	18.00	53.62	230.32	1000.00	PASS

5MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
123900	619.5	37.72	37.72	37.66	37.74	43.73	18.00	59.58	907.97	1000.00	PASS
126900	634.5	37.59	37.73	37.68	37.71	43.70	18.00	59.55	901.25	1000.00	PASS
129900	649.5	37.52	37.70	37.57	37.73	43.65	18.00	59.50	891.55	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124400	622	34.67	34.65	34.69	34.67	40.69	18.00	56.54	450.88	1000.00	PASS
126900	634.5	34.63	34.73	34.68	34.79	40.73	18.00	56.58	454.83	1000.00	PASS
128400	647	34.73	34.76	34.73	34.71	40.75	18.00	56.60	457.42	1000.00	PASS

15MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124900	624.5	32.83	32.81	32.86	32.87	38.86	18.00	54.71	296.02	1000.00	PASS
126900	634.5	32.77	32.85	32.80	32.82	38.83	18.00	54.68	293.81	1000.00	PASS
128900	644.5	32.83	32.87	32.88	32.89	38.89	18.00	54.74	297.73	1000.00	PASS

20MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
125400	627	31.69	31.71	31.62	31.70	37.70	18.00	53.55	226.50	1000.00	PASS
126900	634.5	31.61	31.68	31.67	31.72	37.69	18.00	53.54	225.98	1000.00	PASS
128400	642	31.75	31.74	31.68	31.67	37.73	18.00	53.58	228.07	1000.00	PASS

5MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
123900	619.5	37.57	37.60	37.57	37.58	43.60	18.00	59.45	881.17	1000.00	PASS
126900	634.5	37.64	37.44	37.60	37.62	43.60	18.00	59.45	880.30	1000.00	PASS
129900	649.5	37.50	37.58	37.60	37.69	43.61	18.00	59.46	883.82	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124400	622	34.67	34.72	34.68	34.67	40.71	18.00	56.56	452.44	1000.00	PASS
126900	634.5	34.66	34.73	34.65	34.75	40.72	18.00	56.57	453.77	1000.00	PASS
128400	647	34.76	34.71	34.72	34.68	40.74	18.00	56.59	455.85	1000.00	PASS

15MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124900	624.5	32.80	32.83	32.83	32.89	38.86	18.00	54.71	295.68	1000.00	PASS
126900	634.5	32.77	32.85	32.80	32.78	38.82	18.00	54.67	293.14	1000.00	PASS
128900	644.5	32.87	32.93	32.89	32.82	38.90	18.00	54.75	298.42	1000.00	PASS

20MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
125400	627	31.62	31.68	31.74	31.64	37.69	18.00	53.54	225.99	1000.00	PASS
126900	634.5	31.66	31.73	31.62	31.57	37.67	18.00	53.52	224.70	1000.00	PASS
128400	642	31.69	31.72	31.65	31.67	37.70	18.00	53.55	226.63	1000.00	PASS

5MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
123900	619.5	37.58	37.64	37.64	37.68	43.66	18.00	59.51	892.43	1000.00	PASS
126900	634.5	37.54	37.70	37.52	37.66	43.63	18.00	59.48	886.40	1000.00	PASS
129900	649.5	37.47	37.57	37.42	37.65	43.55	18.00	59.40	870.77	1000.00	PASS

10MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124400	622	34.65	34.69	34.58	34.76	40.69	18.00	56.54	450.93	1000.00	PASS
126900	634.5	34.62	34.70	34.56	34.68	40.66	18.00	56.51	447.81	1000.00	PASS
128400	647	34.63	34.76	34.68	34.73	40.72	18.00	56.57	454.03	1000.00	PASS

15MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
124900	624.5	32.81	32.80	32.82	32.91	38.86	18.00	54.71	295.52	1000.00	PASS
126900	634.5	32.83	32.91	32.79	32.84	38.86	18.00	54.71	296.03	1000.00	PASS
128900	644.5	32.87	32.89	32.88	32.97	38.92	18.00	54.77	300.14	1000.00	PASS

20MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
		ANT0	ANT1	ANT2	ANT3	Total					
125400	627	31.69	31.66	31.69	31.71	37.71	18.00	53.56	226.89	1000.00	PASS
126900	634.5	31.70	31.75	31.68	31.67	37.72	18.00	53.57	227.55	1000.00	PASS
128400	642	31.75	31.70	31.72	31.67	37.73	18.00	53.58	228.07	1000.00	PASS

CA Contiguous

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	QPSK									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 124900	619.5 + 624.5	Carrier 0	34.38	34.41	34.44	34.36	40.42	18.00	56.27	423.47	1000.00	PASS
		Carrier 1	34.22	34.10	34.16	34.16						
126400 + 127400	632 + 637	Carrier 0	34.30	34.37	34.38	34.33	40.37	18.00	56.22	418.38	1000.00	PASS
		Carrier 1	34.14	34.17	34.12	34.21						
128900 + 129900	644.5 + 649.5	Carrier 0	34.40	34.37	34.41	34.42	40.42	18.00	56.27	423.71	1000.00	PASS
		Carrier 1	34.16	34.21	34.17	34.18						

15MHz+20MHz

Channel Number	Freq. (MHz)	Carrier	QPSK									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
124900 + 128400	624.5 + 642	Carrier 0	29.58	29.59	29.25	29.60	35.53	18	51.38	137.34	1000.00	PASS
		Carrier 1	29.35	29.39	29.20	29.34						

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	16QAM									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 124900	619.5 + 624.5	Carrier 0	34.37	34.35	34.29	34.28	40.34	18.00	56.19	416.22	1000.00	PASS
		Carrier 1	34.23	34.09	34.17	34.12						
126400 + 127400	632 + 637	Carrier 0	34.28	34.37	34.27	34.33	40.33	18.00	56.18	415.27	1000.00	PASS
		Carrier 1	34.18	34.11	34.13	34.11						
128900 + 129900	644.5 + 649.5	Carrier 0	34.24	34.43	34.28	34.30	40.33	18.00	56.18	415.31	1000.00	PASS
		Carrier 1	34.12	34.15	34.06	34.08						

15MHz+20MHz

Channel Number	Freq. (MHz)	Carrier	16QAM									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
124900 + 128400	624.5 + 642	Carrier 0	29.48	29.53	29.16	29.46	35.43	18	51.28	134.29	1000.00	PASS
		Carrier 1	29.24	29.26	29.09	29.24						

5MHz+5MHzH

Channel Number	Freq. (MHz)	Carrier	64QAM									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 124900	619.5 + 624.5	Carrier 0	34.39	34.28	34.30	34.32	40.34	18.00	56.19	416.23	1000.00	PASS
		Carrier 1	34.13	34.14	34.12	34.08						
126400 + 127400	632 + 637	Carrier 0	34.34	34.35	34.34	34.38	40.37	18.00	56.22	419.10	1000.00	PASS
		Carrier 1	34.08	34.19	34.10	34.12						
128900 + 129900	644.5 + 649.5	Carrier 0	34.28	34.31	34.25	34.29	40.30	18.00	56.15	412.40	1000.00	PASS
		Carrier 1	34.08	34.17	34.13	34.05						

15MHz+20MHz

Channel Number	Freq. (MHz)	Carrier	64QAM									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
124900 + 128400	624.5 + 642	Carrier 0	29.45	29.49	29.13	29.42	35.40	18	51.25	133.21	1000.00	PASS
		Carrier 1	29.19	29.23	29.06	29.20						

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	256QAM									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 124900	619.5 + 624.5	Carrier 0	34.24	34.19	34.23	34.26	40.25	18.00	56.10	407.44	1000.00	PASS
		Carrier 1	34.06	34.09	34.01	34.10						
126400 + 127400	632 + 637	Carrier 0	34.23	34.27	34.33	34.24	40.29	18.00	56.14	410.99	1000.00	PASS
		Carrier 1	34.03	34.17	34.07	34.12						
128900 + 129900	644.5 + 649.5	Carrier 0	34.14	34.26	34.32	34.26	40.27	18.00	56.12	408.89	1000.00	PASS
		Carrier 1	34.02	34.02	34.04	33.98						

15MHz+20MHz

Channel Number	Freq. (MHz)	Carrier	256QAM									PASS /FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
124900 + 128400	624.5 + 642	Carrier 0	29.36	29.44	29.03	29.41	35.33	18	51.18	131.33	1000.00	PASS
		Carrier 1	29.17	29.12	28.98	29.11						

CA-NC Non-Contiguous

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	QPSK									PASS / FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 129900	619.5 + 649.5	Carrier 0	34.37	34.44	34.35	34.40	40.41	18	56.26	422.74	1000.00	PASS
		Carrier 1	33.44	33.40	33.38	33.37						

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	16QAM									PASS / FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 129900	619.5 + 649.5	Carrier 0	34.38	34.33	34.35	34.39	40.38	18	56.23	420.07	1000.00	PASS
		Carrier 1	33.36	33.29	33.25	33.23						

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	64QAM									PASS / FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 129900	619.5 + 649.5	Carrier 0	34.33	34.29	34.30	34.34	40.34	18	56.19	415.49	1000.00	PASS
		Carrier 1	33.35	33.31	33.32	33.28						

5MHz+5MHz

Channel Number	Freq. (MHz)	Carrier	256QAM									PASS / FAIL
			Conducted Average Power(dBm/MHz)					Directional Gain (dBi)	ERP (dBm/MHz)	ERP (W/MHz)	Limit (W/MHz)	
			ANT0	ANT1	ANT2	ANT3	Total					
123900 + 129900	619.5 + 649.5	Carrier 0	34.23	34.19	34.26	34.31	40.27	18	56.12	409.10	1000.00	PASS
		Carrier 1	33.33	33.28	33.35	33.23						

4.2 Modulation characteristics Measurement

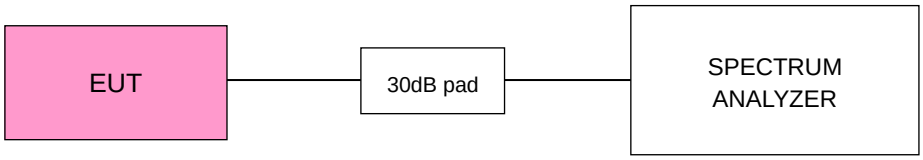
4.2.1 Limits of Modulation characteristics

N/A

4.2.2 Test Procedure

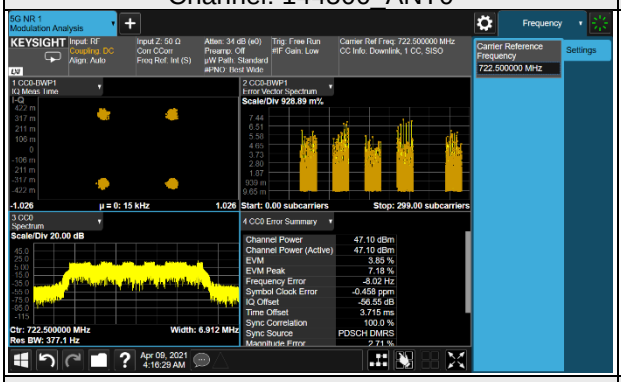
Connect the EUT to spectrum analyzer. The frequency band is set as EUT supported modulation and channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

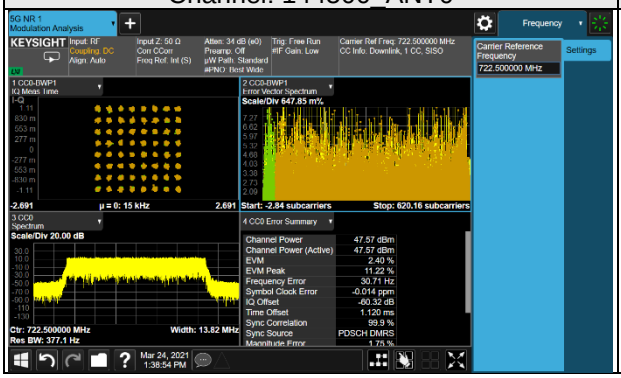
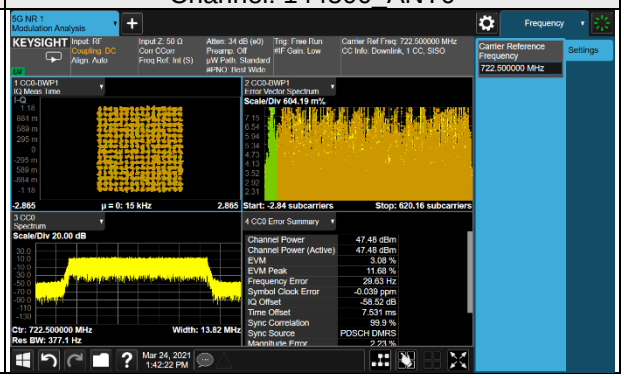
4.2.3 Test Setup



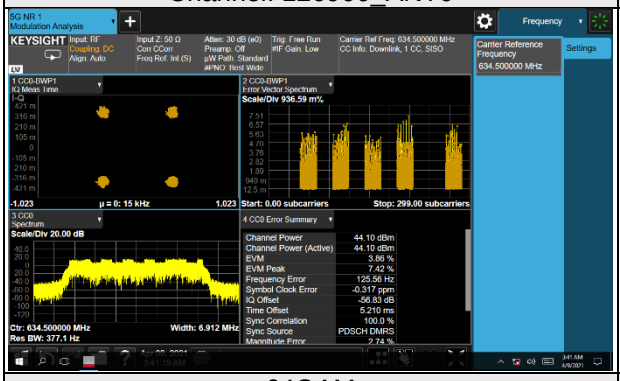
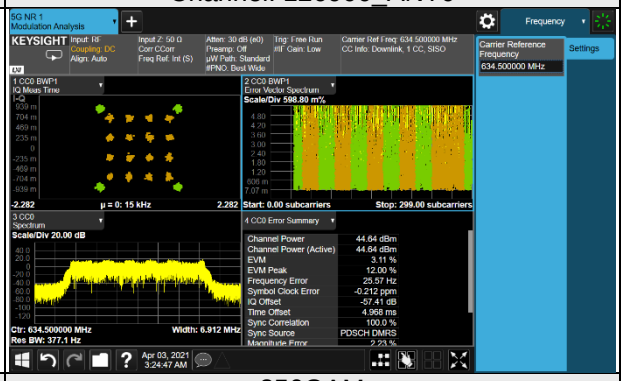
4.2.4 Test Results

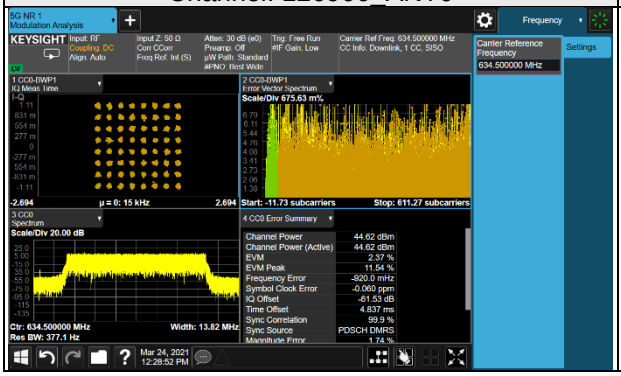
Band n29

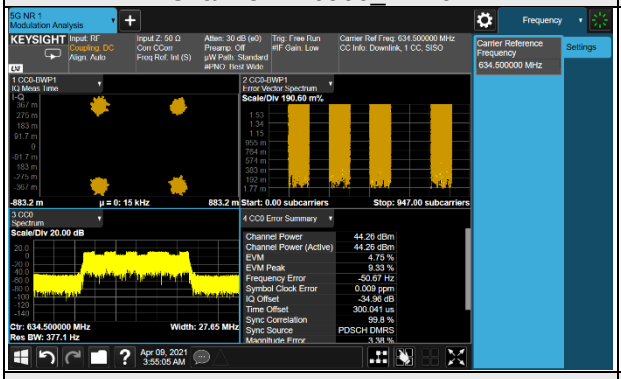
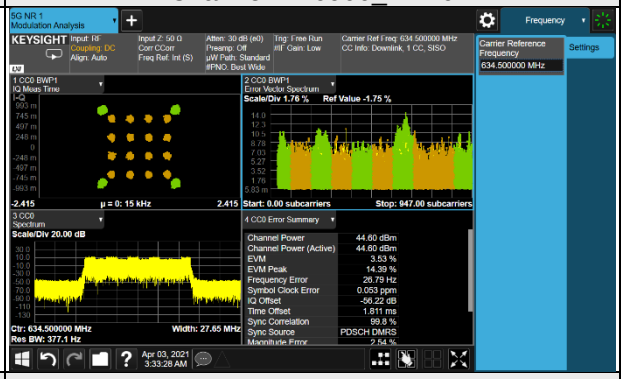
Spectrum Plot of Measurement Value	
5MHz	
QPSK	16QAM
Channel: 144500_ANT0	Channel: 144500_ANT0
	
64QAM	256QAM
Channel: 144500_ANT0	Channel: 144500_ANT0
	

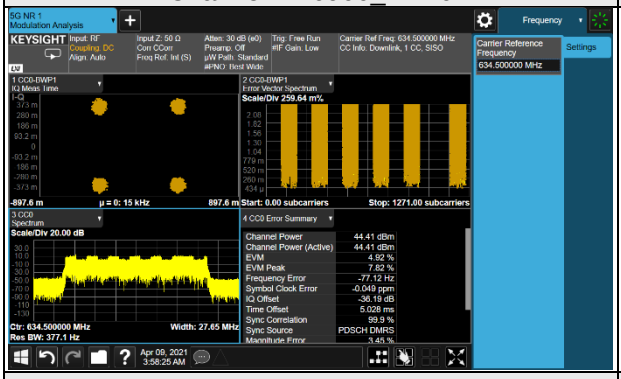
10MHz	
QPSK	16QAM
Channel: 144500_ANT0	Channel: 144500_ANT0
	
64QAM	256QAM
Channel: 144500_ANT0	Channel: 144500_ANT0
	

Band n71

Spectrum Plot of Measurement Value	
5MHz	
QPSK	16QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	
64QAM	256QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	

10MHz	
QPSK	16QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	
64QAM	256QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	

15MHz	
QPSK	16QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	
64QAM	256QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	

20MHz	
QPSK	16QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	
64QAM	256QAM
Channel: 126900_ANT0	Channel: 126900_ANT0
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT -40℃ ~ 55℃.

4.3.2 Test Procedure

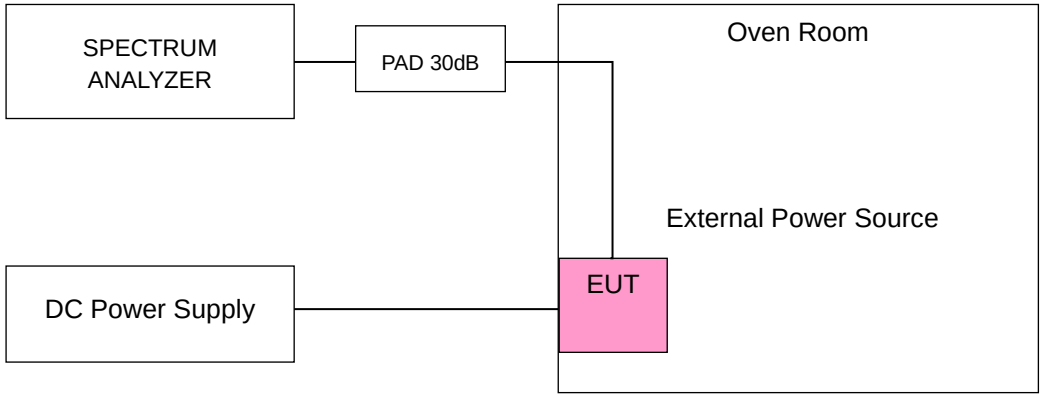
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ 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 n29

SC Mode- ANT0

FREQUENCY ERROR vs. VOLTAGE					Limit (MHz)		PASS/FAIL
Voltage (Volts)	5MHz		10MHz				
	719.5MHz	725.5MHz	722MHz	723MHz	Low Edge	High Edge	
-40.5	717.260004	727.759987	717.840000	727.639970	717	728	PASS
-58.5	717.260006	727.760018	717.839975	727.639993	717	728	PASS

FREQUENCY ERROR vs. Temperature					Limit (MHz)		PASS/FAIL
Temp. (℃)	5MHz		10MHz				
	719.5MHz	725.5MHz	722MHz	723MHz	Low Edge	High Edge	
55	717.259979	727.759985	717.839970	727.639974	717	728	PASS
50	717.259999	727.759972	717.840025	727.639977	717	728	PASS
40	717.260013	727.760010	717.840001	727.640014	717	728	PASS
30	717.260022	727.759984	717.839996	727.640025	717	728	PASS
20	717.259971	727.760027	717.840016	727.640010	717	728	PASS
10	717.259997	727.759985	717.839980	727.639983	717	728	PASS
0	717.260014	727.759987	717.840012	727.640025	717	728	PASS
-10	717.260012	727.759990	717.839989	727.639993	717	728	PASS
-20	717.260023	727.760012	717.839980	727.639986	717	728	PASS
-30	717.259983	727.759979	717.840007	727.639979	717	728	PASS
-40	717.260006	727.759994	717.839983	727.640009	717	728	PASS

SC Mode- ANT1

FREQUENCY ERROR vs. VOLTAGE					Limit (MHz)		PASS/FAIL
Voltage (Volts)	5MHz		10MHz				
	719.5MHz	725.5MHz	722MHz	723MHz	Low Edge	High Edge	
-40.5	717.259985	727.740028	717.800002	727.639971	717	728	PASS
-58.5	717.260013	727.740013	717.800023	727.640005	717	728	PASS

FREQUENCY ERROR vs. Temperature					Limit (MHz)		PASS/FAIL
Temp. (℃)	5MHz		10MHz				
	719.5MHz	725.5MHz	722MHz	723MHz	Low Edge	High Edge	
55	717.260005	727.740018	717.800023	727.640008	717	728	PASS
50	717.260028	727.739986	717.800029	727.639971	717	728	PASS
40	717.259988	727.739985	717.799973	727.640027	717	728	PASS
30	717.259994	727.739982	717.799976	727.640001	717	728	PASS
20	717.259982	727.739991	717.799977	727.640009	717	728	PASS
10	717.260014	727.739993	717.800029	727.639987	717	728	PASS
0	717.259994	727.739986	717.799998	727.639991	717	728	PASS
-10	717.260006	727.739993	717.799987	727.640024	717	728	PASS
-20	717.259982	727.740002	717.799979	727.639988	717	728	PASS
-30	717.260014	727.740021	717.800002	727.639970	717	728	PASS
-40	717.260016	727.739993	717.799984	727.640027	717	728	PASS

CA Mode- Non Contiguous

FREQUENCY ERROR vs. VOLTAGE					Limit (MHz)		PASS/FAIL
Voltage (Volts)	Test result (MHz)						
	5MHz+5MHz						
	ANT0		ANT1				
	719.5MHz+725.5MHz	719.5MHz+725.5MHz	719.5MHz+725.5MHz	719.5MHz+725.5MHz	Low Edge	High Edge	
-40.5	717.260015	727.740016	717.260007	727.759993	717	728	PASS
-58.5	717.259982	727.739995	717.260017	727.760019	717	728	PASS

FREQUENCY ERROR vs. Temperature					Limit (MHz)		PASS/FAIL
Temp. (℃)	Test result (MHz)						
	5MHz+5MHz						
	ANT0		ANT1				
	719.5MHz+725.5MHz	719.5MHz+725.5MHz	719.5MHz+725.5MHz	719.5MHz+725.5MHz	Low Edge	High Edge	
55	717.260013	727.739994	717.259990	727.759999	717	728	PASS
50	717.260004	727.740006	717.259988	727.759977	717	728	PASS
40	717.259991	727.739998	717.260013	727.759974	717	728	PASS
30	717.260022	727.739975	717.259996	727.759974	717	728	PASS
20	717.260029	727.739984	717.260004	727.759998	717	728	PASS
10	717.260001	727.740000	717.259981	727.760016	717	728	PASS
0	717.259994	727.739983	717.260026	727.759987	717	728	PASS
-10	717.259982	727.739983	717.260004	727.759973	717	728	PASS
-20	717.260015	727.740010	717.260012	727.759973	717	728	PASS
-30	717.259997	727.739984	717.259988	727.759976	717	728	PASS
-40	717.259976	727.739993	717.260005	727.759983	717	728	PASS

Band n71
SC Mode- ANT0

FREQUENCY ERROR vs. VOLTAGE									Limit (MHz)		PASS/ FAIL
Voltage (Volts)	Test result (MHz)										
	5MHz		10MHz		15MHz		20MHz				
	619.5MHz	649.5MHz	622MHz	647MHz	624.5MHz	644.5MHz	627MHz	642MHz	Low Edge	High Edge	
-40.5	617.260029	651.740023	617.340015	651.640010	617.450004	651.580021	617.519977	651.480001	617	652	PASS
-58.5	617.260005	651.739990	617.339993	651.639970	617.449983	651.580021	617.520007	651.480002	617	652	PASS

FREQUENCY ERROR vs. Temperature									Limit (MHz)		PASS/ FAIL
Temp. (℃)	Test result (MHz)										
	5MHz		10MHz		15MHz		20MHz				
	619.5MHz	649.5MHz	622MHz	647MHz	624.5MHz	644.5MHz	627MHz	642MHz	Low Edge	High Edge	
55	617.260009	651.740020	617.340012	651.639982	617.450016	651.579990	617.520024	651.480027	617	652	PASS
50	617.259975	651.740003	617.340029	651.640002	617.450005	651.580025	617.519983	651.480000	617	652	PASS
40	617.259991	651.739970	617.340007	651.639992	617.450001	651.580024	617.519970	651.480008	617	652	PASS
30	617.260021	651.739983	617.339986	651.639987	617.449995	651.580005	617.519992	651.479982	617	652	PASS
20	617.260006	651.739984	617.340014	651.639992	617.450000	651.580004	617.520023	651.480020	617	652	PASS
10	617.260029	651.739971	617.339995	651.639989	617.449974	651.579972	617.519978	651.479979	617	652	PASS
0	617.260029	651.740008	617.339992	651.639980	617.449986	651.580011	617.520016	651.480010	617	652	PASS
-10	617.260014	651.739999	617.339978	651.640004	617.449997	651.579994	617.519978	651.479985	617	652	PASS
-20	617.260012	651.740028	617.340021	651.640004	617.449988	651.579973	617.519980	651.479990	617	652	PASS
-30	617.260019	651.740022	617.340013	651.640019	617.450012	651.579989	617.520003	651.479975	617	652	PASS
-40	617.259986	651.739990	617.340029	651.639996	617.450003	651.580025	617.520000	651.479984	617	652	PASS

SC Mode- ANT1

FREQUENCY ERROR vs. VOLTAGE									Limit (MHz)		PASS/ FAIL
Voltage (Volts)	Test result (MHz)										
	5MHz		10MHz		15MHz		20MHz				
	619.5MHz	649.5MHz	622MHz	647MHz	624.5MHz	644.5MHz	627MHz	642MHz	Low Edge	High Edge	
-40.5	617.259988	651.739971	617.360010	651.579990	617.450005	651.580006	617.520003	651.480027	617	652	PASS
-58.5	617.260014	651.739971	617.360020	651.580020	617.449976	651.580005	617.520012	651.479997	617	652	PASS

FREQUENCY ERROR vs. Temperature									Limit (MHz)		PASS/ FAIL
Temp. (℃)	Test result (MHz)										
	5MHz		10MHz		15MHz		20MHz				
	619.5MHz	649.5MHz	622MHz	647MHz	624.5MHz	644.5MHz	627MHz	642MHz	Low Edge	High Edge	
55	617.259978	651.740023	617.359991	651.579988	617.450023	651.580022	617.520026	651.479982	617	652	PASS
50	617.259985	651.740021	617.360026	651.579987	617.450027	651.580007	617.520012	651.479996	617	652	PASS
40	617.260029	651.740000	617.360025	651.579988	617.449991	651.580022	617.520024	651.480005	617	652	PASS
30	617.260010	651.739997	617.360000	651.580021	617.450003	651.580011	617.519987	651.480018	617	652	PASS
20	617.259974	651.740003	617.359992	651.580020	617.449999	651.580011	617.519985	651.480001	617	652	PASS
10	617.260026	651.740024	617.359979	651.579984	617.450002	651.579987	617.520010	651.479982	617	652	PASS
0	617.259989	651.740003	617.360004	651.580029	617.450013	651.579971	617.519972	651.479975	617	652	PASS
-10	617.260017	651.739996	617.360028	651.579974	617.449983	651.580028	617.519971	651.480001	617	652	PASS
-20	617.259972	651.740011	617.359995	651.579983	617.449979	651.579994	617.520020	651.480010	617	652	PASS
-30	617.259988	651.739974	617.359980	651.579987	617.449980	651.580028	617.520002	651.480029	617	652	PASS
-40	617.260026	651.740018	617.360007	651.579978	617.450018	651.580022	617.520012	651.479992	617	652	PASS

SC Mode- ANT2

FREQUENCY ERROR vs. VOLTAGE									Limit (MHz)		PASS/ FAIL
Voltage (Volts)	Test result (MHz)										
	5MHz		10MHz		15MHz		20MHz				
	619.5MHz	649.5MHz	622MHz	647MHz	624.5MHz	644.5MHz	627MHz	642MHz	Low Edge	High Edge	
-40.5	617.260005	651.740013	617.360009	651.630021	617.449985	651.580018	617.519982	651.479999	617	652	PASS
-58.5	617.260025	651.740022	617.359992	651.630001	617.450019	651.580011	617.519980	651.480017	617	652	PASS

FREQUENCY ERROR vs. Temperature									Limit (MHz)		PASS/ FAIL
Temp. (℃)	Test result (MHz)										
	5MHz		10MHz		15MHz		20MHz				
	619.5MHz	649.5MHz	622MHz	647MHz	624.5MHz	644.5MHz	627MHz	642MHz	Low Edge	High Edge	
55	617.260024	651.739999	617.359973	651.629991	617.450012	651.580025	617.520009	651.479984	617	652	PASS
50	617.260027	651.739992	617.359972	651.630026	617.449989	651.579979	617.519988	651.479985	617	652	PASS
40	617.260027	651.740015	617.360028	651.629983	617.450012	651.579992	617.520009	651.480028	617	652	PASS
30	617.260007	651.740026	617.360006	651.629997	617.450005	651.579985	617.520021	651.480012	617	652	PASS
20	617.259983	651.740013	617.360005	651.629983	617.450025	651.579999	617.520011	651.480012	617	652	PASS
10	617.260024	651.739973	617.360015	651.630015	617.449990	651.579993	617.519990	651.479997	617	652	PASS
0	617.260006	651.740028	617.359973	651.629985	617.450003	651.580002	617.519982	651.479977	617	652	PASS
-10	617.259996	651.740003	617.359971	651.629994	617.449984	651.579997	617.519976	651.479979	617	652	PASS
-20	617.260025	651.740009	617.359993	651.629997	617.449987	651.579994	617.519986	651.479983	617	652	PASS
-30	617.260015	651.740012	617.360008	651.629996	617.449979	651.579975	617.520015	651.479982	617	652	PASS
-40	617.260003	651.740017	617.360004	651.630020	617.450004	651.580008	617.519996	651.479988	617	652	PASS