

TEST REPORT

FCC Sub6 n2 Test for TM19FNNAHD4 Certification

APPLICANT LG Electronics Inc.

REPORT NO. HCT-RF-2411-FC014

DATE OF ISSUE December 6, 2024

> **Tested by** Jung Ki Lim

Ar

Technical Manager Jong Seok Lee



F-TP22-03(Rev.06)

The report shall not be (partly) reproduced except in full without approval of the laboratory. HCT CO., LTD. 2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea Tel. +82 31 645 6300 Fax. +82 31 645 6401

1/134



HCT CO.,LTD. 2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea Tel. +82 31 645 6300 Fax. +82 31 645 6401

T E S T R E P O R T	REPORT NO. HCT-RF-2411-FC014 DATE OF ISSUE December 06, 2024
Applicant	LG Electronics Inc. 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
Product Name Model Name	Telematics TM19FNNAHD4
Date of Test	September 30, 2024 ~ December 5, 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	BEJTM19FNNAHD4
FCC Classification	PCS Licensed Transmitter (PCB)
Test Standard Used	FCC Rule Part(s): §24
Test Results	PASS





REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	December 06, 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.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

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 **. Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).





CONTENTS

1. GENERAL INFORMATION
1.1. MAXIMUM OUTPUT POWER 6
2. INTRODUCTION
2.1. DESCRIPTION OF EUT
2.2. MEASURING INSTRUMENT CALIBRATION7
2.3. TEST FACILITY
3. DESCRIPTION OF TESTS
3.1 TEST PROCEDURE
3.2 CONDUCTED OUTPUT POWER
3.3 RADIATED POWER
3.4 RADIATED SPURIOUS EMISSIONS
3.5 PEAK- TO- AVERAGE RATIO 12
3.6 OCCUPIED BANDWIDTH14
3.7 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL
3.8 BAND EDGE
3.9 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE
3.10 WORST CASE(RADIATED TEST)
3.11 WORST CASE (CONDUCTED TEST)
4. LIST OF TEST EQUIPMENT
5. MEASUREMENT UNCERTAINTY
6. SUMMARY OF TEST RESULTS
7. SAMPLE CALCULATION
8. TEST DATA
8.1 Conducted Output Power
8.2 EQUIVALENT ISOTROPIC RADIATED POWER
8.2.1 External Antenna
8.2.2 Internal Antenna
8.3 RADIATED SPURIOUS EMISSIONS
8.3.1 External Antenna
8.3.2 Internal Antenna
8.4 PEAK-TO-AVERAGE RATIO
8.5 OCCUPIED BANDWIDTH
8.6 CONDUCTED SPURIOUS EMISSIONS 40
8.7 BLOCK EDGE
8.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE
9. TEST PLOTS
10. ANNEX A_ TEST SETUP PHOTO 134



MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics Inc.
Address:	128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
FCC ID:	BEJTM19FNNAHD4
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 24
EUT Type:	Telematics
Model(s):	TM19FNNAHD4
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15, 20
Waveform:	CP-OFDM, DFT-S-OFDM
Modulation:	DFT-S-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM
Modulation:	CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
	1852.5 MHz – 1907.5 MHz (Sub6 n2 (5 MHz))
T. F	1855.0 MHz – 1905.0 MHz (Sub6 n2 (10 MHz))
Tx Frequency:	1857.5 MHz – 1902.5 MHz (Sub6 n2 (15 MHz))
	1860.0 MHz – 1900.0 MHz (Sub6 n2 (20 MHz))
Date(s) of Tests:	September 30, 2024 ~ December 5, 2024
EUT Sorial number:	Radiated : Honda MY26 #02
EUT Serial number:	Conducted : Honda MY26 #01
External Antenna	8B505-3NAF-A000 : C03640005
Serial number	
Antenna Information	Please refer to the Antenna Approval Specification document.



1.1. MAXIMUM OUTPUT POWER

Mode		Emission		Conducted Output Power		
(MHz)	Tx Frequency (MHz)	Designator	Modulation	Max. Power (W)	Max. Power (dBm)	
	4M50G7D	PI/2 BPSK	0.227	23.56		
		4M50G7D	QPSK	0.219	23.40	
Sub6 n2 (5)	1852.5 - 1907.5	4M51W7D	16QAM	0.179	22.52	
		4M50W7D	64QAM	0.126	21.00	
		4M51W7D	256QAM	0.072	18.55	
		8M98G7D	PI/2 BPSK	0.228	23.57	
		8M98G7D	QPSK	0.219	23.41	
Sub6 n2 (10)	1855.0 - 1905.0	8M96W7D	16QAM	0.179	22.53	
		8M98W7D	64QAM	0.125	20.98	
		8M97W7D	256QAM	0.071	18.51	
		13M5G7D	PI/2 BPSK	0.232	23.66	
		13M5G7D	QPSK	0.223	23.48	
Sub6 n2 (15)	1857.5 - 1902.5	13M5W7D	16QAM	0.181	22.57	
		13M5W7D	64QAM	0.125	20.97	
		13M4W7D	256QAM	0.074	18.67	
		17M9G7D	PI/2 BPSK	0.229	23.60	
		17M9G7D	QPSK	0.225	23.52	
Sub6 n2 (20)	1860.0 - 1900.0	17M9W7D	16QAM	0.176	22.46	
		17M9W7D	64QAM	0.132	21.19	
		17M9W7D	256QAM	0.073	18.61	





2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Telematics with LTE, Sub 6.

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





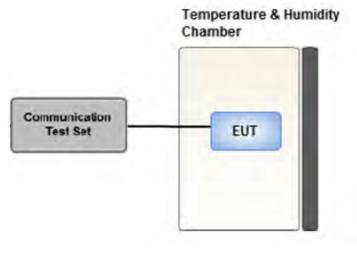
3. DESCRIPTION OF TESTS

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
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8



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 POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna.

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 turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission.
- 2. A half wave dipole is then substituted in place of the EUT. For emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The power is calculated by the following formula;

 P_{d} (dBm) = Pg (dBm) - cable loss (dB) + antenna gain (dB)

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.

3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value.

These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

- 4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- 5. 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.



3.4 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber. Radiated Spurious Emission Measurements at 3 meters by Substitution Method.

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

- 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.
- 2. 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

3. For spurious emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The spurious emissions is calculated by the following formula;

Result (dBm) = Pg (dBm) - cable loss (dB) + antenna gain (dBi)

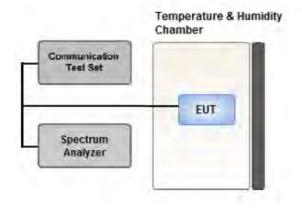
Where: P_g is the generator output power into the substitution antenna.

If the fundamental frequency is below 1 GHz, RF output power has been converted to EIRP.

EIRP $_{(dBm)}$ = ERP $_{(dBm)}$ + 2.15



3.5 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

- 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 P_{Pk} .

Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P_{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 $\geq 3 \times$ RBW.

- 1. Set the RBW \geq OBW.
- 2. Set VBW \geq 3 × RBW.
- 3. Set span $\geq 2 \times OBW$.
- 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 $\geq 2 \times \text{span} / \text{RBW}$.
- 5. Sweep time:

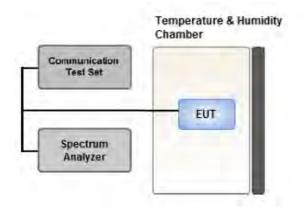
Set \geq [10 × (number of points in sweep) × (transmission period)] for single sweep

(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.
- 10. 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 %.



3.6 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

Test Settings

- 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



Communication Test Set EUT Spectrum Analyzer

3.7 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL

Test setup

Test Overview

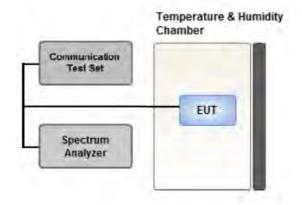
The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured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

Test Settings

- 1. RBW = 1 MHz
- 2. VBW \geq 3 MHz
- 3. Detector = Peak
- 4. Trace Mode = Max Hold
- 5. Sweep time = auto
- 6. Number of points in sweep $\geq 2 \times \text{Span} / \text{RBW}$



3.8 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.

Test Settings

- 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 $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = trace average
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize



Test Notes

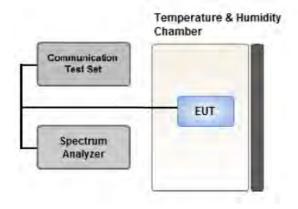
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a 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.



3.9 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.

Test Settings

- 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.





3.10 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 : SA, NSA

Worst case : SA

- All simultaneous transmission scenarios of operation were investigated, and the test results showed no additional significant emissions relative to the least restrictive limit were observed.

Therefore, only the worst case(stand-alone) results were reported.

- Radiated Spurious emissions are measured while operating in EN-DC mode with Sub 6 NR carrier as well as an LTE carrier (anchor).
- All EN-DC mode of operation (=anchor) were investigated and the test results were measured No Peak Found.
- The test results which are attenuated more than 20 dB below the permissible value, so it was not reported.
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.

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 : 10 MHz)
- (Internal Antenna Worst case : 5 MHz)

[External Antenna Worst case]

Test Description	Modulation	RB size	RB offset	Axis
	PI/2 BPSK,			
	QPSK,	QPSK, 16QAM, See Section 8.2.1 64QAM,		Y
Equivalent Isotropic Radiated Power	16QAM,			
	64QAM,			
	256QAM			
Radiated Spurious Emissions	PI/2 BPSK	See Sect	tion 8.3.1	Х

[Internal Antenna Worst case]

Test Description	Modulation	RB size	RB offset	Axis
	PI/2 BPSK,			
Equivalent Isotropic Radiated Power	QPSK,	AM, See Section 8.2.2		Z
	16QAM,			
	64QAM,			
	256QAM			
Radiated Spurious Emissions	PI/2 BPSK	See Sec	tion 8.3.2	Х



3.11 WORST CASE (CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported. (Worst case: DFT-S-OFDM)

- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported. (Worst case: PI/2 BPSK)

- All modes of operation were investigated and the worst case configuration results are reported. Mode : SA, NSA

Worst case : SA

- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported. Please refer to the table below.

Test Description	Modulation	Bandwidth	Frequency	RB size	RB offset
·		(MHz)			
	PI/2 BPSK,				
	QPSK,				
Occupied Bandwidth	16QAM,	5, 10, 15, 20	Mid	Full RB	0
	64QAM,				
	256QAM				
	PI/2 BPSK,				
	QPSK,				
Peak-To-Average Ratio	16QAM,	5, 10, 15, 20	Mid	Full RB	0
	64QAM,				
	256QAM				
	PI/2 BPSK	5	Low	1	0
		5	High	1	24
		10	Low	1	0
		10	High	1	51
Band Edge		16	Low	1	0
		15	High	1	78
		20	Low	1	0
		20	High	1	105
		5, 10, 15, 20	Low,	Full RB	0
			High		
Spurious and Harmonic Emissions			Low,		
at Antenna Terminal	PI/2 BPSK	5, 10, 15, 20	Mid, High	1	1

[Worst case]



4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacture	Serial No.	Due to Calibration	Calibration Interval
Precision Dipole Antenna	UHAP	Schwarzbeck	01273	03/10/2026	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	02289	02/14/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1299	04/27/2025	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Loop Antenna(9 kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	01/16/2025	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
RF Switching System	FBSR-06B (1G HPF + LNA)	T&M SYSTEM	F3L1	05/14/2025	Annual
RF Switching System	FBSR-06B (3G HPF + LNA)	T&M SYSTEM	F3L2	05/14/2025	Annual
RF Switching System	FBSR-06B (6G HPF + LNA)	T&M SYSTEM	F3L3	05/14/2025	Annual
RF Switching System	FBSR-06B (LNA)	T&M SYSTEM	F3L4	05/14/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/22/2025	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/29/2025	Annual
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	04/04/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer (10 Hz~40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/13/2025	Annual
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	23/05/2025	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(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/10/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

1. 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, § 24.238(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	PASS
Peak- to- Average Ratio	§ 24.232(d)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§ 24.235	Emission must remain in band	PASS

Note:

1. All conducted tests were tested using 5G Wireless Tester.

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated	§ 24.232(c)	< 2 Watts max. EIRP	PASS
Power	5 2 1.252(0)		17,85
Radiated Spurious and	§ 2.1053,	<43+10log10 (P[Watts]) for	DACC
Harmonic Emissions	§ 24.238(a)	all out-of band emissions	PASS

Note:

1. Radiated tests were tested using 5G Wireless Tester.



7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

Ch.	/ Freq.	Measured	Substitute	Ant. Gain	<u> </u>	Pol.	ERP		
channel	Freq.(MHz)	Level (dBm)	Level (dBm)	(dBd)	C.L	POI.	w	dBm	
128	824.20	-21.37	38.40	-10.61	0.95	Н	0.483	26.84	

ERP = Substitute LEVEL(dBm) + Ant. Gain - CL(Cable Loss)

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.

- 2) During the test, the turn table is rotated until the maximum signal is found.
- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power.

7.2 EIRP Sample Calculation

Ch.	/ Freq.	Measured	Substitute	Ant. Gain	<u> </u>	Del	EIRP		
channel	Freq.(MHz)	Level (dBm)	Level (dBm)	(dBi)	C.L	Pol.	w	dBm	
20175	1,732.50	-15.75	18.45	9.90	1.76	Н	0.456	26.59	

EIRP = Substitute LEVEL(dBm) + Ant. Gain – CL(Cable Loss)

- 1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
- 2) During the test, the turn table is rotated until the maximum signal is found.
- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.



7.3. 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

Bandwidth	SCS(kHz)	OFDM	Modulation	RB	RB	Max.Av	ax.Average Power (dBm)			
Danuwiuth	3C3(KI12)			Size	Offset	370500	376000	381500		
						1852.5 MHz	1880 MHz	1907.5 MHz		
				1	1	23.51	23.56	23.52		
				1	13	23.48	23.51	23.45		
				1	23	23.43	23.45	23.50		
			pi/2 BPSK	12	0	22.88	22.93	22.92		
				12	7	23.46	23.52	23.48		
	15	DFT-s		12	13	22.94	22.99	23.01		
5 MHz	15			25	0	22.85	22.90	22.92		
			QPSK	1	1	23.36	23.34	23.40		
			16QAM	1	1	22.41	22.34	22.52		
			64QAM	1	1	21.00	20.87	20.86		
			256QAM	1	1	18.55	18.53	18.51		
		СР	QPSK	1	1	21.97	21.82	21.98		

Bandwidth	SCS(kHz)	OFDM	Modulation	RB	RB	Max.A	Max.Average Power (dBm)			
Danuwiuun	SCS(KHZ)	OFDM	Modulation	Size	Offset	371000	376000	381000		
						1855 MHz	1880 MHz	1905 MHz		
				1	1	23.49	23.52	23.49		
				1	26	23.47	23.48	23.48		
				1	50	23.46	23.51	23.48		
			pi/2 BPSK	25	0	22.91	22.98	22.97		
				25	14	23.45	23.57	23.50		
10 MU-	15	DFT-s		25	27	22.96	23.03	22.96		
10 MHz	15			50	0	23.00	22.98	23.03		
			QPSK	1	1	23.26	23.31	23.41		
			16QAM	1	1	22.36	22.37	22.53		
			64QAM	1	1	20.85	20.84	20.98		
			256QAM	1	1	18.51	18.42	18.48		
		СР	QPSK	1	1	21.79	21.79	22.04		



Bandwidth	SCS(kHz)	OFDM	Modulation	RB	RB	Max.Average Power (dBm)			
Danuwiuun	SCS(KHZ)	OFDM	modulation	Size	Offset	371500	376000	380500	
						1857.5 MHz	1880 MHz	1857.5 MHz	
				1	1	23.59	23.66	23.50	
				1	40	23.51	23.59	23.47	
				1	77	23.58	23.62	23.49	
			pi/2 BPSK	36	0	23.01	23.06	22.94	
				36	22	23.63	23.54	23.47	
15 MHz	15	DFT-s		36	43	23.06	23.06	23.01	
	15			75	0	22.99	23.03	22.96	
			QPSK	1	1	23.44	23.48	23.39	
			16QAM	1	1	22.57	22.57	22.36	
			64QAM	1	1	20.97	20.92	20.92	
			256QAM	1	1	18.42	18.67	18.58	
		СР	QPSK	1	1	21.86	21.92	21.86	

Bandwidth	SCS(///1-2)	OFDM	Modulation	RB	RB	Max.Average Power (dBm)				
Danuwiuun	SCS(kHz)	OFDM	Modulation	Size	Offset	372000	376000	380000		
						1860 MHz	1880 MHz	1900 MHz		
				1	1	23.47	23.53	23.54		
				1	53	23.55	23.58	23.49		
				1	104	23.60	23.50	23.52		
			pi/2 BPSK	50	0	22.95	23.01	22.99		
				50	28	23.55	23.55	23.48		
20 MUL-	15	DFT-s		50	56	22.68	23.07	22.97		
20 MHz	15			100	0	23.00	23.06	22.94		
			QPSK	1	1	23.47	23.52	23.45		
			16QAM	1	1	22.43	22.46	22.39		
			64QAM	1	1	21.06	21.03	21.19		
			256QAM	1	1	18.55	18.58	18.61		
		СР	QPSK	1	1	22.01	22.05	21.90		



8.2 EQUIVALENT ISOTROPIC RADIATED POWER

8.2.1 External Antenna

E Freq	Mod/ Bandwidt		Measure	Substitut	Ant.	C I	D	Limi t	EIRP		RB	
Freq (MHz)	h [SCS (kHz)]	Modulatio n	d Level (dBm)	e Level (dBm)	Gain(dBi)	C.L	Po l	w	w	dBm	Siz e	Offse t
		PI/2 BPSK	-14.81	18.82	10.45	2.08	н		0.524	27.19		
		QPSK	-14.84	18.79	10.45	2.08	н		0.520	27.16		
1852.5		16-QAM	-15.86	17.77	10.45	2.08	Н		0.411	26.14	1	23
		64-QAM	-17.33	16.30	10.45	2.08	Н		0.293	24.67		
		256-QAM	-19.32	14.31	10.45	2.08	Н		0.185	22.68		
		PI/2 BPSK	-15.02	18.55	10.34	2.21	Н		0.466	26.68		
	Sub6 n2/	QPSK	-15.03	18.54	10.34	2.21	Н		0.465	26.67		
1880.0	5 MHz	16-QAM	-16.06	17.51	10.34	2.21	Н	< 2.00	0.366	25.64	1	1
	[15 kHz]	64-QAM	-17.56	16.01	10.34	2.21	Н	2.00	0.259	24.14		
		256-QAM	-19.57	14.00	10.34	2.21	Н		0.163	22.13		
	-	PI/2 BPSK	-16.28	17.62	10.21	2.17	Н		0.368	25.66		
		QPSK	-16.34	17.56	10.21	2.17	Н		0.363	25.60		
1907.5		16-QAM	-17.38	16.52	10.21	2.17	Н		0.286	24.56	1	12
		64-QAM	-18.85	15.05	10.21	2.17	Н		0.204	23.09		
		256-QAM	-20.81	13.09	10.21	2.17	Н		0.130	21.13		



Mod/ Bandwidt Freq		Madulatia	Measure d	Substitut	Ant.		De	Limi t	EI	RP		RB
(MHz)	h [SCS (kHz)]	Modulatio n	a Level (dBm)	e Level (dBm)	Gain(dBi)	C.L	Po l	w	w	dBm	Siz e	Offse t
		PI/2 BPSK	-14.72	18.91	10.45	2.08	н		0.535	27.28		
		QPSK	-14.80	18.83	10.45	2.08	н		0.525	27.20		
1855.0		16-QAM	-15.81	17.82	10.45	2.08	Н		0.416	26.19	1	50
		64-QAM	-17.26	16.37	10.45	2.08	Н		0.298	24.74		
		256-QAM	-19.28	14.35	10.45	2.08	Н		0.187	22.72		
	-	PI/2 BPSK	-14.96	18.61	10.34	2.21	Н		0.472	26.74		
	Sub6 n2/	QPSK	-14.99	18.58	10.34	2.21	Н		0.469	26.71	1	
1880.0	10 MHz	16-QAM	-16.02	17.55	10.34	2.21	Н	< 2.00	0.370	25.68		50
	[15 kHz]	64-QAM	-17.45	16.12	10.34	2.21	Н		0.266	24.25		
		256-QAM	-19.47	14.10	10.34	2.21	Н		0.167	22.23		
	-	PI/2 BPSK	-15.67	18.37	10.23	2.19	Н		0.438	26.41		
	1905.0	QPSK	-15.72	18.32	10.23	2.19	Н		0.433	26.36		
1905.0		16-QAM	-16.72	17.32	10.23	2.19	Н		0.344	25.36	1	1
		64-QAM	-18.20	15.84	10.23	2.19	Н		0.244	23.88		
	_	256-QAM	-20.20	13.84	10.23	2.19	Н			21.88	8	



Mod/ Bandwidt Freg		Modulatio	Measure d	Substitut	Ant.		Da	Limi t	EI	EIRP		RB	
(MHz)	h [SCS (kHz)]	n	a Level (dBm)	e Level (dBm)	Gain(dBi)	C.L	Po l	w	w	dBm	Siz e	Offse t	
		PI/2 BPSK	-14.64	18.68	10.43	2.10	Н		0.502	27.01			
		QPSK	-14.68	18.64	10.43	2.10	Н		0.498	26.97			
1857.5		16-QAM	-15.68	17.64	10.43	2.10	Н		0.395	25.97	1	77	
		64-QAM	-17.13	16.19	10.43	2.10	Н		0.283	24.52			
		256-QAM	-19.14	14.18	10.43	2.10	Н		0.178	22.51			
		PI/2 BPSK	-14.86	18.71	10.34	2.21	Н		0.483	26.84			
	Sub6 n2/	QPSK	-14.94	18.63	10.34	2.21	Н		0.474	26.76			
1880.0	15 MHz	16-QAM	-15.95	17.62	10.34	2.21	Н	< 2.00	0.376	25.75	5 1	1	
	[15 kHz]	64-QAM	-17.40	16.17	10.34	2.21	Н		0.269	24.30			
		256-QAM	-19.41	14.16	10.34	2.21	Н		0.169	22.29			
		PI/2 BPSK	-15.63	18.41	10.23	2.19	Н		0.442	26.45			
		QPSK	-15.74	18.30	10.23	2.19	Н		0.431	26.34			
1902.5		16-QAM	-16.71	17.33	10.23	2.19	Н		25.37	1	1		
		64-QAM	-18.16	15.88	10.23	2.19	Н		0.247	23.92			
	=	256-QAM	-20.16	13.88	10.23	2.19	Н		0.156	21.92			



Free	Mod/ Bandwidt	Modulatio	Measure d	Substitut	Ant.		De	Limi t	EIRP			RB
Freq (MHz)	h [SCS (kHz)]	n	a Level (dBm)	e Level (dBm)	Gain(dBi)	C.L	Po l	w	w	dBm	Siz e	Offse t
		PI/2 BPSK	-14.57	18.75	10.43	2.10	н		0.511	27.08		
		QPSK	-14.63	18.69	10.43	2.10	н		0.504	27.02		
1860.0		16-QAM	-15.63	17.69	10.43	2.10	Н		0.400	26.02	1	104
		64-QAM	-17.10	16.22	10.43	2.10	н		0.285	24.55		
		256-QAM	-19.09	14.23	10.43	2.10	н		0.180	22.56		
		PI/2 BPSK	-14.73	18.84	10.34	2.21	Н		0.498	26.97		
	Sub6 n2/	QPSK	-14.83	18.74	10.34	2.21	Н		0.486	26.87		
1880.0	20 MHz	16-QAM	-15.76	17.81	10.34	2.21	Н	< 2.00	0.393	25.94	1	1
	[15 kHz]	64-QAM	-17.24	16.33	10.34	2.21	Н		0.279	24.46		
		256-QAM	-19.25	14.32	10.34	2.21	Н		0.176	22.45		
		PI/2 BPSK	-15.44	18.73	10.25	2.20	Н		0.476	26.78		
		QPSK	-15.46	18.71	10.25	2.20	Н		0.474	26.76		
1900.0		16-QAM	-16.45	17.72	10.25	2.20	Н		0.378	25.77	1	1
		64-QAM	-17.93	16.24	10.25	2.20	Н		0.269	24.29		
		256-QAM	-19.93	14.24	10.25	2.20	Н		0.169	22.29		



8.2.2 Internal Antenna

Free	Mod/ Bandwidt	Madulatia	Measure	Substitut			Da	Limi t	EI	RP	RB	
Freq (MHz)	h [SCS (kHz)]	Modulatio n	d Level (dBm)	e Level (dBm)	Gain(dBi)	C.L	Po l	w	w	dBm	Siz e	Offse t
		PI/2 BPSK	-15.38	18.25	10.45	2.08	н		0.459	26.62		
		QPSK	-15.45	18.18	10.45	2.08	н		0.452	26.55		
1852.5		16-QAM	-16.42	17.21	10.45	2.08	Н		0.361	25.58	1	12
		64-QAM	-17.89	15.74	10.45	2.08	Н		0.258	24.11		
		256-QAM	-19.88	13.75	10.45	2.08	Н		0.163	22.12		
		PI/2 BPSK	-15.65	17.92	10.34	2.21	Н		0.403	26.05		
	Sub6 n2/	QPSK	-15.73	17.84	10.34	2.21	Н	-	0.395	25.97		
1880.0	5 MHz	16-QAM	-16.65	16.92	10.34	2.21	Н	< 2.00	0.320	25.05	1	1
	[15 kHz]	64-QAM	-18.12	15.45	10.34	2.21	Н	2.00	0.228	23.58		
		256-QAM	-20.11	13.46	10.34	2.21	Н		0.144	21.59		
		PI/2 BPSK	-16.86	17.04	10.21	2.17	Н	-	0.322	25.08		
		QPSK	-16.96	16.94	10.21	2.17	Н	-	0.315	24.98		
1907.5		16-QAM	-17.82	16.08	10.21	2.17	Н		0.258	24.12	1	23
		64-QAM	-19.29	14.61	10.21	2.17	н		0.184	22.65		
		256-QAM	-21.25	12.65	10.21	2.17	Н		0.117	20.69		



Freq (MHz)	Mod/ Bandwidt h [SCS (kHz)]	Madulatia	Measure o d Substitut Level G (dBm)	Substitut	Ant.			Limi t	EIRP		RB	
		Modulatio n		Gain(dBi)	C.L	Po l	w	w	dBm	Siz e	Offse t	
		PI/2 BPSK	-15.47	18.16	10.45	2.08	Н		0.450	26.53		26
1855.0		QPSK	-15.50	18.13	10.45	2.08	н		0.447	26.50		
	Sub6 n2/ 10 MHz [15 kHz]	16-QAM	-16.44	17.19	10.45	2.08	Н		0.360	25.56	1	
		64-QAM	-17.91	15.72	10.45	2.08	Н		0.256	24.09		
		256-QAM	-19.89	13.74	10.45	2.08	Н		0.163	22.11	1	
		PI/2 BPSK	-15.48	18.09	10.34	2.21	Н	 2.00 0.41 0.33 0.23 0.14 0.37 0.37 0.30 0.21 	0.419	26.22		1
		QPSK	-15.53	18.04	10.34	2.21	Н		0.414	26.17		
1880.0		16-QAM	-16.52	17.05	10.34	2.21	Н		0.330	25.18	1	
		64-QAM	-17.98	15.59	10.34	2.21	Н		0.236	23.72		
		256-QAM	-20.00	13.57	10.34	2.21	Н		0.148	21.70		
		PI/2 BPSK	-16.30	17.74	10.23	2.19	Н		0.378	25.78		
1905.0		QPSK	-16.32	17.72	10.23	2.19	Н		0.377	25.76		
		16-QAM	-17.28	16.76	10.23	2.19	Н		0.302	24.80	1	1
		64-QAM	-18.72	15.32	10.23	2.19	Н		0.217	23.36		
		256-QAM	-20.68	13.36	10.23	2.19	Н		0.138	21.40	1	



Freq (MHz)	Mod/ Bandwidt h [SCS (kHz)]	Measure Modulatio d	Substitut	Ant.		Ро	Limi t	EIRP		RB		
		n	Level (dBm)	e Level (dBm)	Gain(dBi)	Bi C.L	l	w	w	dBm	Siz e	Offse t
		PI/2 BPSK	-15.27	18.05	10.43	2.10	н		0.435	26.38		
		QPSK	-15.30	18.02	10.43	2.10	н		0.432	26.35		
1857.5		16-QAM	-16.29	17.03	10.43	2.10	Н		0.344	25.36	1	39
		64-QAM	-17.75	15.57	10.43	2.10	Н		0.246	23.90		
		256-QAM	-19.76	13.56	10.43	2.10	Н		0.155	21.89		
		PI/2 BPSK	-15.25	18.32	10.34	2.21	н	< 2.00	0.442	26.45		1
	Sub6 n2/	QPSK	-15.30	18.27	10.34	2.21	Н		0.437	26.40		
1880.0	15 MHz	16-QAM	-16.34	17.23	10.34	2.21	н		0.344	25.36	1	
	[15 kHz]	64-QAM	-17.79	15.78	10.34	2.21	н		0.246	23.91		
		256-QAM	-19.80	13.77	10.34	2.21	н		0.155	21.90		
	T	PI/2 BPSK	-16.04	18.00	10.23	2.19	Н		0.402	26.04		
1902.5		QPSK	-16.08	17.96	10.23	2.19	Н		0.398	26.00		
		16-QAM	-17.07	16.97	10.23	2.19	Н	0.	0.317	25.01	1	1
		64-QAM	-18.54	15.50	10.23	2.19	Н		0.226	23.54		
		256-QAM	-20.52	13.52	10.23	2.19	Н		0.143	21.56	<u> </u>	



Freq	Mod/ Bandwidt h [SCS (kHz)]	Measure Modulatio d	Substitut	Ant.		De	Limi t	EIRP		RB		
(MHz)		n	a Level (dBm)	e Level (dBm)	Gain(dBi)	C.L	Po l	w	W	dBm	Siz e	Offse t
		PI/2 BPSK	-15.14	18.18	10.43	2.10	н		0.448	26.51	_	
		QPSK	-15.20	18.12	10.43	2.10	н		0.442	26.45		
1860.0		16-QAM	-16.24	17.08	10.43	2.10	н		0.348	25.41	1	53
		64-QAM	-17.69	15.63	10.43	2.10	н		0.249	23.96	-	
		256-QAM	-19.70	13.62	10.43	2.10	Н		0.157	21.95		
		PI/2 BPSK	-15.35	18.22	10.34	2.21	Н	< 0.429	0.432	26.35		1
	Sub6 n2/	QPSK	-15.38	18.19	10.34	2.21	Н		0.429	26.32		
1880.0	20 MHz	16-QAM	-16.40	17.17	10.34	2.21	Н		0.339	25.30	1	
	[15 kHz]	64-QAM	-17.88	15.69	10.34	2.21	Н		0.241	23.82		
		256-QAM	-19.87	13.70	10.34	2.21	Н		0.152	21.83		
		PI/2 BPSK	-15.93	18.24	10.25	2.20	н		0.426	26.29		
		QPSK	-15.95	18.22	10.25	2.20	Н		0.424	26.27		
1900.0		16-QAM	-16.94	17.23	10.25	2.20	Н	0.241	0.337	25.28	1	1
		64-QAM	-18.40	15.77	10.25	2.20	Н		0.241	23.82		
		256-QAM	-20.40	13.77	10.25	2.20	Н		0.152	21.82		



8.3 RADIATED SPURIOUS EMISSIONS

8.3.1 External Antenna

NR Band:	<u>N2</u>
Bandwidth:	10 MHz
Modulation:	PI/2 BPSK
Distance:	3 meters
SCS:	15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offse t
271000	3 710.00	-60.55	12.08	-60.92	3.08	V	-51.92	-13.00	1	50
371000 (1855.0)	5 565.00	-62.61	12.22	-56.77	3.88	V	-48.43	-13.00		
(1855.0)	7 420.00	-63.06	11.23	-47.63	4.55	V	-40.95	-13.00		
376000	3 760.00	-56.26	11.90	-55.89	3.12	Н	-47.11	-13.00	1	50
(1880.0)	5 640.00	-62.54	12.14	-56.22	3.92	V	-48.00	-13.00		
(1880.0)	7 520.00	-63.51	11.56	-48.66	4.61	V	-41.71	-13.00		
291000	3 810.00	-61.92	11.67	-61.41	3.20	V	-52.94	-13.00		
381000	5 715.00	-63.62	11.91	-56.86	4.01	V	-48.96	-13.00	1	1
(1905.0)	7 620.00	-62.81	11.58	-48.73	4.65	V	-41.80	-13.00		





8.3.2 Internal Antenna

NR Band:	<u>N2</u>
Bandwidth:	5 MHz
Modulation:	PI/2 BPSK
Distance:	3 meters
SCS:	15 kHz

Ch	Freq (MHz)	Measured	Ant. Gain	Substitute	C.L	Pol	Result	Limit	F	RB
•		Level (dBm)	(dBi)	Level (dBm)	•••=		(dBm)	(dBm)	Size	Offset
270500	3 705.00	-55.73	12.08	-56.42	3.08	Н	-47.42	-13.00		
370500 (1852.5)	5 557.50	-61.19	12.22	-55.42	3.88	V	-47.08	-13.00	1	12
(1852.5)	7 410.00	-63.52	11.19	-48.09	4.57	V	-41.47	-13.00		
27000	3 760.00	-57.30	11.90	-56.93	3.12	V	-48.15	-13.00		
376000	5 640.00	-62.60	12.14	-56.28	3.92	V	-48.06	-13.00	1	1
(1880.0)	7 520.00	-64.20	11.56	-49.35	4.61	V	-42.40	-13.00		
201500	3 815.00	-56.18	11.65	-55.43	3.20	V	-46.98	-13.00		
381500	5 722.50	-62.31	11.88	-56.17	4.00	V	-48.29	-13.00	1	23
(1907.5)	7 630.00	-63.16	11.56	-48.96	4.66	V	-42.06	-13.00		



8.4 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulatio n	Resource Block Size	Resource Block Offset	Data (dB)
			BPSK			4.09
			QPSK			4.66
	5 MHz		16-QAM	25		5.88
			64-QAM			6.25
			256-QAM			6.92
-			BPSK			3.95
			QPSK			4.59
	10 MHz		16-QAM	50		5.61
		1000.0	64-QAM			6.13
			256-QAM		0	6.71
Sub6 n2		1880.0	BPSK		0	4.01
			QPSK	75		4.55
	15 MHz		16-QAM			5.49
			64-QAM			6.03
			256-QAM			6.68
			BPSK			4.06
			QPSK			4.61
	20 MHz		16-QAM	100		5.55
			64-QAM			6.04
			256-QAM			6.65

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 46 \sim 65.

F-TP22-03 (Rev. 06)



8.5 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulatio n	Resource Block Size	Resource Block Offset	Data (MHz)	
			BPSK			4.5035	
			QPSK				4.5017
	5 MHz		16-QAM	25		4.5093	
			64-QAM			4.5018	
			256-QAM			4.5058	
-			BPSK			8.9764	
			QPSK			8.9803	
	10 MHz	1880.0	16-QAM	50		8.9621	
			64-QAM			8.9844	
			256-QAM			8.9660	
Sub6 n2			1880.0	BPSK		0	13.513
			QPSK	75		13.488	
	15 MHz		16-QAM			13.459	
			64-QAM			13.492	
			256-QAM			13.440	
			BPSK			17.927	
			QPSK			17.893	
	20 MHz		16-QAM	100		17.935	
			64-QAM			17.894	
			256-QAM			17.910	

Note: 1. Plots of the EUT's Occupied Bandwidth are shown Page 66 ~ 85.

F-TP22-03 (Rev. 06)



Band	Band Width (MHz)	Frequenc y (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
		1852.5	9.8106	30.815	-62.983	-32.168	
	5	1880.0	4.9652	30.200	-62.214	-32.014	
		1907.5	9.7208	30.815	-63.267	-32.452	
		1855.0	3.7388	30.200	-63.206	-33.006	
	10	1880.0	5.0050	30.815	-62.376	-31.561	
Sub6		1905.0	9.6909	30.815	-63.298	-32.483	-13.00
n2		1857.5	8.1057	30.815	-63.068	-32.253	-15.00
	15	1880.0	8.0259	30.815	-62.853	-32.038	
		1902.5	3.7887	30.200	-63.069	-32.869	
		1860.0	3.8385	30.200	-62.754	-32.554	
	20	1880.0	4.0679	30.200	-63.094	-32.894	
		1900.0	9.7109	30.815	-62.953	-32.138	

8.6 CONDUCTED SPURIOUS EMISSIONS

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 86 ~ 109.

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

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

Frequency Range (GHz)	Factor [dB]
0.03 - 1	27.494
1 – 5	30.200
5 - 10	30.815
10 - 15	31.340
15 - 20	31.713
Above 20	32.355

8.7 BLOCK EDGE

- Plots of the EUT's Block edge are shown Page 110 ~ 133.



8.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

Voltage(100 %):

LIMIT:

<u>5 MHz</u> <u>13.200 VDC</u> Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm	
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)		
	100 %	+20(Ref)	1852 499 996	0.0	0.000 000	0.000	
-	100 %	-30	1852 499 989	-7.6	0.000 000	-0.004	
-	100 %	-20	1852 499 987	-9.3	-0.000 001	-0.005	
-	100 %	-10	1852 499 985	-11.6	-0.000 001	-0.006	
-	100 %	0	1852 500 002	5.1	0.000 000	0.003	
1852.5	100 %	+10	1852 499 999	2.9	0.000 000	0.002	
-	100 %	+30	1852 499 997	0.2	0.000 000	0.000	
-	100 %	+40	1852 499 994	-2.0	0.000 000	-0.001	
-	100 %	+50	1852 499 993	-3.5	0.000 000	-0.002	
-	85 %	+20	1852 499 992	-4.5	0.000 000	-0.002	
-	115 %	+20	1852 499 990	-6.1	0.000 000	-0.003	
	100 %	+20(Ref)	1907 500 008	0.0	0.000 000	0.000	
-	100 %	-30	1907 499 997	-10.9	-0.000 001	-0.006	
-	100 %	-20	1907 500 014	6.1	0.000 000	0.003	
-	100 %	-10	1907 500 014	5.9	0.000 000	0.003	
-	100 %	0	1907 499 995	-13.2	-0.000 001	-0.007	
1907.5	100 %	+10	1907 500 012	3.7	0.000 000	0.002	
-	100 %	+30	1907 500 011	3.0	0.000 000	0.002	
-	100 %	+40	1907 500 010	2.1	0.000 000	0.001	
-	100 %	+50	1907 500 010	1.2	0.000 000	0.001	
-	85 %	+20	1907 500 010	2.2	0.000 000	0.001	
=	115 %	+20	1907 500 008	-0.4	0.000 000	0.000	



BandWidth:

Voltage(100 %):

■ LIMIT:

10 MHz

13.200 VDC

Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm	
(MHz)	(%)	(°C)	(Hz)	(Hz) Error (Hz)			
	100 %	+20(Ref)	1854 999 999	0.0	0.000 000	0.000	
-	100 %	-30	1854 999 994	-4.3	0.000 000	-0.002	
-	100 %	-20	1854 999 991	-7.4	0.000 000	-0.004	
-	100 %	-10	1854 999 989	-9.9	-0.000 001	-0.005	
-	100 %	0	1855 000 004	5.2	0.000 000	0.003	
1855.0	100 %	+10	1854 999 997	-1.8	0.000 000	-0.001	
-	100 %	+30	1855 000 000	1.1	0.000 000	0.001	
	100 %	+40	1854 999 997	-1.6	0.000 000	-0.001	
	100 %	+50	1854 999 994	-4.4	0.000 000	-0.002	
-	85 %	+20	1855 000 003	3.9	0.000 000	0.002	
-	115 %	+20	1855 000 010	11.6	0.000 001	0.006	
	100 %	+20(Ref)	1904 999 997	0.0	0.000 000	0.000	
-	100 %	-30	1904 999 995	-2.4	0.000 000	-0.001	
-	100 %	-20	1904 999 995	-2.8	0.000 000	-0.001	
-	100 %	-10	1904 999 994	-3.5	0.000 000	-0.002	
-	100 %	0	1904 999 994	-3.3	0.000 000	-0.002	
1905.0	100 %	+10	1904 999 994	-3.0	0.000 000	-0.002	
-	100 %	+30	1904 999 994	-3.5	0.000 000	-0.002	
-	100 %	+40	1904 999 994	-3.4	0.000 000	-0.002	
-	100 %	+50	1904 999 993	-4.4	0.000 000	-0.002	
-	85 %	+20	1904 999 994	-3.2	0.000 000	-0.002	
-	115 %	+20	1904 999 992	-5.9	0.000 000	-0.003	



BandWidth:

Voltage(100 %):

LIMIT:

15 MHz

13.200 VDC

Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm	
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)		
	100 %	+20(Ref)	1857 500 020	0.0	0.000 000	0.000	
-	100 %	-30	1857 500 036	16.9	0.000 001	0.009	
-	100 %	-20	1857 500 034	14.7	0.000 001	0.008	
-	100 %	-10	1857 500 032	11.9	0.000 001	0.006	
-	100 %	0	1857 500 029	9.4	0.000 001	0.005	
1857.5	100 %	+10	1857 500 045	25.2	0.000 001	0.014	
-	100 %	+30	1857 500 024	4.0	0.000 000	0.002	
-	100 %	+40	1857 500 022	2.5	0.000 000	0.001	
	100 %	+50	1857 500 038	18.0	0.000 001	0.010	
-	85 %	+20	1857 500 016	-3.6	0.000 000	-0.002	
-	115 %	+20	1857 500 016	-4.1	0.000 000	-0.002	
	100 %	+20(Ref)	1902 500 008	0.0	0.000 000	0.000	
-	100 %	-30	1902 500 016	8.1	0.000 000	0.004	
-	100 %	-20	1902 500 016	8.1	0.000 000	0.004	
-	100 %	-10	1902 500 017	8.7	0.000 000	0.005	
-	100 %	0	1902 500 016	8.3	0.000 000	0.004	
1902.5	100 %	+10	1902 500 016	7.7	0.000 000	0.004	
-	100 %	+30	1902 500 016	8.4	0.000 000	0.004	
-	100 %	+40	1902 500 017	8.9	0.000 000	0.005	
	100 %	+50	1902 500 017	9.1	0.000 000	0.005	
-	85 %	+20	1902 500 004	-3.6	0.000 000	-0.002	
-	115 %	+20	1902 500 003	-5.2	0.000 000	-0.003	



BandWidth:

Voltage(100 %):

■ LIMIT:

20 MHz

13.200 VDC

Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm	
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)		
	100 %	+20(Ref)	1859 999 998	0.0	0.000 000	0.000	
-	100 %	-30	1859 999 998	-0.3	0.000 000	0.000	
-	100 %	-20	1859 999 997	-1.3	0.000 000	-0.001	
	100 %	-10	1859 999 995	-2.9	0.000 000	-0.002	
-	100 %	0	1859 999 992	-6.0	0.000 000	-0.003	
1860.0	100 %	+10	1859 999 991	-7.5	0.000 000	-0.004	
-	100 %	+30	1859 999 990	-8.2	0.000 000	-0.004	
-	100 %	+40	1859 999 988	-9.8	-0.000 001	-0.005	
	100 %	+50	1859 999 986	-12.1	-0.000 001	-0.006	
-	85 %	+20	1859 999 989	-8.7	0.000 000	-0.005	
-	115 %	+20	1859 999 992	-6.2	0.000 000	-0.003	
	100 %	+20(Ref)	1900 000 010	0.0	0.000 000	0.000	
	100 %	-30	1900 000 018	8.9	0.000 000	0.005	
-	100 %	-20	1900 000 018	8.1	0.000 000	0.004	
-	100 %	-10	1900 000 016	6.8	0.000 000	0.004	
-	100 %	0	1900 000 016	6.0	0.000 000	0.003	
1900.0	100 %	+10	1900 000 015	5.1	0.000 000	0.003	
	100 %	+30	1900 000 013	3.8	0.000 000	0.002	
-	100 %	+40	1900 000 013	3.9	0.000 000	0.002	
-	100 %	+50	1900 000 012	2.5	0.000 000	0.001	
-	85 %	+20	1900 000 011	1.5	0.000 000	0.001	
-	115 %	+20	1900 000 013	3.0	0.000 000	0.002	





9. TEST PLOTS

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





NR2_5 M_PAR_Mid_BPSK_FullRB



	ioupling DG Cor	r CCorr Prea 9 Ref. Inf (S)	mp Off	#IF Gain: Low	Counts 2 00 M/2 00 Radio Std: None	Mpt	Ref Level Offset 28.48 dB	Y Scale
Aetrics		2 Graph					On Off	Attenuati
		Gaussian						Signal Pa
Average P	ower 21.69 dBm							
	52.11 % at 0 dB							
	52.11 % at 0 ub	10	11					
10.0 %	2.48 dB							
1.0 %	4.33 dB	15		X				
0.1 %	4.66 dB							
0.01 %	4.74 dB	ú.1 %						
0.001 %	4.84 dB							
0.0001 %	4.96 dB	0.01 %						
Peak	5.07 dB	0.001 %						
	26.76 dBm							
		0.0001 %				20.00 dB		Loc
		Info BW 5.0000	MHz					

NR2_5 M_PAR_Mid_QPSK_FullRB





NR2_5 M_PAR_Mid_16QAM_FullRB





NR2_5 M_PAR_Mid_64QAM_FullRB



	iplina DC: Cor	ut Z:50 Q Atten: 10 r CCorr Preamo q Ret. Int (S)		00 M/2 00 Mpt	dB
etrics		2 Graph			
		Gaussian		1.00	Signal P
Average Pov		100 *			
	18,13 dBm				
	5.73 % at 0 dB	10 %			
10.0 %	2.98 dB				
1.0 %	5.32 dB	1 74			
0,1 %	6.92 dB				
0.01 %	8,03 dB	0.1%			
0.001 %	8.34 dB				
0.0001 %	8.49 dB	0.01.9			
Peak	8.81 dB	0.001 %			
	26,94 dBm				
		0.000 dB 0.00 dB Info BW 5.0000 MH	2	20.00 dB	Loc

NR2_5 M_PAR_Mid_256QAM_FullRB



	upling DG Cor	ut Z 50 Ω Atten 10 d τ CCorr Preamo O q Ret int (S)	Center Freq. 1.880000000 GHz Counts: 2.00 M/2.00 Mpt Radio Std: None	Ref Level Off 28.48 dB	Isel Y Scale
letrics		2 Graph		On Off	Attenuatio
		Gaussian			Signal Pa
Average Pov	ver 22.43 dBm	A-1-			
	48.85 % at 0 dB	10 5			
10.0 %	1.91 dB				
1.0 %	3.57 dB				
0.1 %	3.95 dB				
0.01 %	4.12 dB	0.1 %			
0.001 %	4.22 dB				
0.0001 %	4.30 dB	0.01.5			
	4.36 dB				
Peak	4.30 dB 26.79 dBm	0,001 %			
	20.79 dBm				
		0.000 dB Info BW 10.000 MHz	20.00	dB	Loc

NR2_10 M_PAR_Mid_BPSK_FullRB



A	oupling DG Cor	r CCorr Prea q Ref. inf (S)		Trig Free Run #IF Gain Low	Center Freq. 1 880 Counts: 2 00 M/2 0 Radio Std. None		Ref Level Offset 28.48 dB	Y Scale
letrics		2 Graph					On Of	Attenuati
		Gaussian						Signal Pa
Average P		100						
	21.96 dBm							
	48.59 % at 0 dB	10	11					
10.0 %	2.33 dB							
1.0 %	4.17 dB	1		\mathbf{X}				
0.1 %	4.59 dB			\sim			6.	
0.01 %	4.71 dB	0.1 %		$\langle \rangle$			1	
0.001 %	4.81 dB							
0.0001 %	4.97 dB	n nit %						
_								
Peak	5.07 dB	0.001 %						
a and a	27.03 dBm							
		0.0001 %				20.00 dB		Loc
		Info BW 10.000	MHz			20.00 00		

NR2_10 M_PAR_Mid_QPSK_FullRB



	upling DG Cor	r CCorr Prea 9 Ref. Inf (S)	mo Off	#IF Gain Low	Counts 2 00 M/2 0 Radio Std: None	0 Mpt	Ref Level Offset 28.48 dB	Y Scale
etrics		2 Graph			and the second second		On Of	Attenuati
		Gaussian					1	Signal P
Average Po		100						
	20.94 dBm							
	46.34 % at 0 dB	10 %						
10.0 %	2.82 dB							
1.0 %	4.90 dB		\.	1				
0.1 %	5.61 dB							
0.01 %	5.77 dB	Ú.1 %		$\langle \rangle$				
0.001 %	5.89 dB							
0.0001 %	6.00 dB	0.01 %		\rightarrow				
Peak	6.04 dB	0.001 %			λ			
	26.98 dBm							
		0.00 dB				20.00 dB		Loc
		Info BW 10.000	MHz			20.00 00		

NR2_10 M_PAR_Mid_16QAM_FullRB





NR2_10 M_PAR_Mid_64QAM_FullRB





NR2_10 M_PAR_Mid_256QAM_FullRB



		mo Off #	IF Gain: Low	Counts 2 00 M/2 Radio Std None	00 Mpt	Ref Level Offset 28.48 dB	Y Scale
	2 Graph			and a second second		On Off	Attenuat
	Gaussian						Signal P
er	100						
8.31 % at 0 dB	10 %						
1.92 dB							
3.44 dB	1 74		$\langle $				
4.01 dB							
4.17 dB	0.1 %		\sim				
4.27 dB			=				
4.32 dB	0.01.9						
1.10.40							
	0.001 %						
26.86 dBm							
	0.000 dB 0.00 dB Info BW 15.000				20.00 dB		Loc
	er 22.46 dBm 3.31 % at 0 dB 1.92 dB 3.44 dB 4.01 dB 4.17 dB 4.27 dB	Auto Freq Ret Int (S) 2 Graph Gaussian er 22.46 dBm 9.31 % at 0 dB 10 % 1.92 dB 3.44 dB 4.01 dB 5.7 % 4.27 dB 5.7 % 4.32 dB 101 % 4.40 dB 0.001 % 26.86 dBm 0.001 %	Auto Freq Ret Int (S) er 2 Graph 22.46 dBm Caussian 9.31 % at 0 dB 101 1.92 dB 3.44 dB 4.01 dB 11 4.27 dB 111 4.32 dB 101 4.40 dB 0.001	Auto Freq Ret Inf (S) er 2 Graph 22.46 dBm 100 9.31 % at 0 dB 100 1.92 dB 3.44 dB 4.01 dB 10 4.27 dB 101 4.27 dB 101 4.32 dB 101 26.86 dBm 0001	Auto Freq Ret Int (S) Radio Sid None er 2.2.46 dBm 2 Graph Gaussian 9.31 % at 0 dB 109 0 0 1.92 dB 3.44 dB 0 0 0 4.17 dB 0.15 0 0 0 4.27 dB 103 0 0 0 4.32 dB 0.001 0 0 0 0	Auto Freq Ret Int (S) Radio Sid None er 2.2.46 dBm 2 Graph Gaussian 9.31 % at 0 dB 10 ⁹ 0 0 1.92 dB 3.44 dB 0 0 0 4.01 dB 0.15 0 0 0 4.17 dB 0.15 0 0 0 4.32 dB 0.001 0 0 0 0	Auto Freq Ret Int (S) Radio Std None 28.48 dB er 2.46 dBm 9.31 % at 0 dB 10 0 1.92 dB 10 0 3.44 dB 0 4.01 dB 0.15 4.27 dB 0.15 4.27 dB 0.15 4.27 dB 0.15 4.26 dBm 0.001

NR2_15 M_PAR_Mid_BPSK_FullRB



	oupling DC Con	nt Z 50 Ω Atten r CCorr Preamo g Ret Int (S)				Ref Level Offset 28.48 dB	Y Scale
letrics		2 Graph				On Olf	Attenuatio
		Gaussian					Signal Pa
Average Po		100					
	21.97 dBm						
	48.20 % at 0 dB	10					
10.0 %	2.31 dB						
1.0 %	4.15 dB	12					
0.1 %	4.55 dB						
0.01 %	4.68 dB	0.7 %					
0.001 %	4.82 dB						
0.0001 %	5.07 dB	n ()1 %		1			
Peak	5.31 dB	0.001 %					
	27.28 dBm						
		0.0001 w			20.00 dB		Loca
		Info BW 15.000 M	Hz		20.00 00		

NR2_15 M_PAR_Mid_QPSK_FullRB





NR2_15 M_PAR_Mid_16QAM_FullRB





NR2_15 M_PAR_Mid_64QAM_FullRB





NR2_15 M_PAR_Mid_256QAM_FullRB



A	oupling DG Cor	r CCorr Prea q Ret inl (S)	imo Off	#IF Gain: Low	Counts 2 00 M/2 Radio Std. None	00 Mpt	Ref Level Offset 28,48 dB	Y Scale
letrics		2 Graph					On Off	Attenuatio
		Gaussian						Signal Pa
Average Po		100 %						
	22.41 dBm							
	48.03 % at 0 dB	10	1/					
10.0 %	2.06 dB							
1.0 %	3.76 dB			$\boldsymbol{\lambda}$				
0,1 %	4.06 dB							
0.01 %	4.19 dB	0.1 %						
0.001 %	4.30 dB							
0.0001 %	4.39 dB	n dit %						
Peak	4.40 dB	0.001 %						
	26,81 dBm							
		0.0001 5				20.00 dB		Loc
		Info BW 20.000	MHz			20.00 dB		

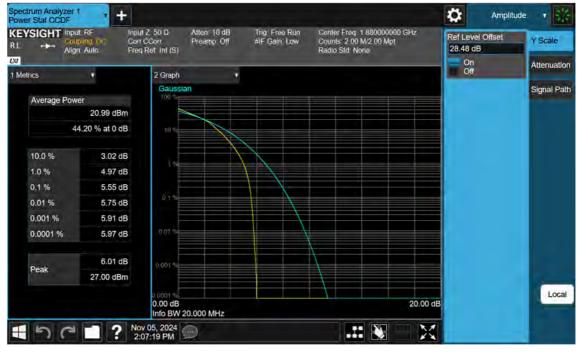
NR2_20 M_PAR_Mid_BPSK_FullRB



Al	upling DG Cor	r CCorr Prea 9 Ref. Inl (S)	imp Off	#IF Gain: Low	Counts 2 00 M/2 Radio Std. None	00 Mpt	Ref Level Offset 28.48 dB	Y Scale
letrics		2 Graph					On Olf	Attenuati
		Gaussian						Signal Pa
Average Po		100 1						
	21.96 dBm							
	46.99 % at 0 dB	10						
10.0 %	2.57 dB							
1.0 %	4.32 dB	1		\mathbf{X}				
0.1 %	4.61 dB							
0.01 %	4.76 dB	0.1 %		\sim				
0.001 %	4.90 dB							
0.0001 %	5.00 dB	.0 01 %						
Peak	5.07 dB	0.001 %						
a second	27.03 dBm							
		0.000 dB 0.00 dB Info BW 20.000				20.00 dB		Loc

NR2_20 M_PAR_Mid_QPSK_FullRB





NR2_20 M_PAR_Mid_16QAM_FullRB





NR2_20 M_PAR_Mid_64QAM_FullRB





NR2_20 M_PAR_Mid_256QAM_FullRB





EYSIGHT Input RF Coupling DG Align Auto	Input Z 50 Q Atten 10 dB Corr CCorr Preamp Off Freq Ret Int (S)		req 1 880000000 GHz 1 500/500 Id Nona	Center Frequency 1.880000000 GHz	Settings
PASS Braph	NFE Adaptive Ref LvI Offset			Span 10.000 MHz	
ale/Div 10.0 dB	Ref Value 40.0			CF Step 1.000000 MHz Auto Man	
00 00 00 00 00 00 00 00 00			PEAK	Freq Offset 0 Hz	
nter 1.880000 GHz es BW 100.00 kHz	#Video BW 39		Span 10 MHz Sweep 16.7 ms (1001 pts)		
Vetrics • Occupied Bandwidth 4.5035	MHz	Total Power	31.3 dBm		
Transmit Freq Error x dB Bandwidth	-9.181 kHz 4.996 MHz	% of OBW Power x dB	99.00 % -26.00 dB		LO

NR2_5 M_OBW_Mid_BPSK_FullRB





EYSIGHT Input. RF Couping DG Align Auto	Input Z: 50 Q Corr CCorr Freq Ret: Int (S) NFE: Adaptive	Atten 10 dB Preamp Off	Trig: Free Run Gale: Off #IF Gain: Low	Center Free AvgiHold 5 Radio Std 1			iler Frequency 80000000 GHz	Settings
PASS Graph + cale/Div 10.0 dB	And the other set of the	Ref LvI Offset 28 Ref Value 40.00				Spa 10,	n 000 MHz	
				tin the state of the		CF 1.0	Auto	
00 0.0 0.0 0.0 0.0 0.0				Your	hope that when	10000	Man 9 Olfset 12	
onter 1.880000 GHz es BW 100.00 kHz		#Video BW 390.	00 kHz	Sw	Span 10 reep 16.7 ms (100			
Metrics Occupied Bandwidth 4.501	7 MHz		Total Power		31.0 dBm			
Transmit Freq Error x dB Bandwidth	-6.106 k 4.995 M		% of OBW Pov x dB	ver	99.00 % -26.00 dB			Los

NR2_5 M_OBW_Mid_QPSK_FullRB





Settings	Center Frequency 1.880000000 GHz	U GHZ		vgiHold 5 Radio Std 1		Trig Fr Gate C #IF Gat	Atlen 10 dB Preamp Off	t Z: 50 Ω CCorr Ret: Int (S) Adaptive	Con Fred	Align Auto	
	Span 10.000 MHz						Ref LvI Offset 2 Ref Value 40.00			*	Graph ale/Div 10.0
	CF Step 1.000000 MHz			1		aem	Ker value 40.00				
	Auto Man			7	ويعادي سينية	<u>مار بد المدیم رامه</u>	an a				2.0 2.0
	Freq Offset 0 Hz	and the second sec	Winster Muer	Ward					nasi	1. shphank Vi	00 0.0 0.0 0.0
		pan 10 MHz				.00 kHz	#Video BW 390) GHz	0.0 0.0 enter 1,8800
		s (1001 pts)	eep 16.7 ms	Sw) kHz T	Res BW 100. Metrics
		Bm	30.1 dE		wer	Total			1)93 MHz	ed Bandwidth 4.5	Occu
Lo		9%	99.00 -26.00		3W Power			-5.733 k 5.009 M		hit Freq Error andwidth	

NR2_5 M_OBW_Mid_16QAM_FullRB





I Graph Ref Lvi Offset 28.48 dB Ref Value 40.00 dBm I.O.000 MHz Scale/Div 10.0 dB Ref Value 40.00 dBm I.O.000 MHz I.O.000 MHz Scale/Div 10.0 dB I.O.000 MHz I.O.000 MHz I.O.000 MHz Scale/Div 10.0 dB I.O.000 MHz I.O.000 MHz I.O.000 MHz Scale/Div 10.0 dB I.O.000 MHz I.O.000 MHz I.O.0000 MHz Scale/Div 10.0 dB I.O.000 MHz I.O.0000 MHz I.O.0000 MHz Scale/Div 10.00 MHz I.O.000 MHz I.O.000 MHz I.O.00000 MHz Scale/Div 10.00 MHz I.O.000 MHz Span 10 MHz I.O.000 MHz Scale/Div 10.00 KHz #Video BW 390.00 KHz Span 10 MHz I.O.001 pts) Metrics I.O.000 KHz I.O.000 KHz Span 10 MHz Occupied Bandwidth 4.5018 MHz I.O.00 KHz Span 0 GHZ Transmit Freg Error -5.139 KHz % of OBW Power 99.00 %	L Align Auto Fre	ut Z 50 Ω Atten 10 dB rr CCorr Preamp Off eq Ret Int (S) E Adaptive	Gate Off Avg	nter Freq. 1 880000000 GHz j[Hold: 500/500 dio Std. Nona	Center Frequency 1.880000000 GHz	Settings
CF Step 1.000000 MHz Auto Man Freq Offset 0+z 0 0 0 0 0 0 0 0 0 0 0 0 0	Graph	Ref LvI Offset				
PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK PEAK	00 00 0 0 0				1.000000 MHz	
enter 1.880000 GHz #Video BW 390.00 kHz Span 10 MHz Res BW 100.00 kHz Sweep 16.7 ms (1001 pts) Metrics Occupied Bandwidth 4.5018 MHz Total Power 29.6 dBm Transmit Freq Error -5.139 kHz % of OBW Power 99.00 %	100 200 WM www. White www. www. www.			Hannah PE		
Occupied Bandwidth 4.5018 MHz Total Power 29.6 dBm Transmit Freq Error -5.139 kHz % of OBW Power 99.00 %	enter 1.880000 GHz	#Video BW 39	0.00 kHz			
	Occupied Bandwidth	z	Total Power	29.6 dBm		
						Lo

NR2_5 M_OBW_Mid_64QAM_FullRB





RL - Align Auto Fr	put Z 50 Q Atten 10 dB or CCorr Preamp Off reg Ret Int (S) FE Adaptive	Trig Free Run Gate Off #IF Gain Low	Center Freq. 1 88000000 Avg[Hold: 500/500 Radio Std: None) GHz	Center Frequency 1.880000000 GHz	Settings
Graph Graph I	Ref Lvi Offset				Span 10.000 MHz	
-0g 30.0 20.0 10.0					CF Step 1.000000 MHz Auto Man	
0.00 10.0 20.0 30.0 40.0 50.0			harrenne	PEAK nhydyddydae	Freq Olfset 0 Hz	
Center 1.880000 GHz Res BW 100.00 kHz	#Video BW 39	0.00 kHz	Sweep 16.7 ms	pan 10 MHz s (1001 pts)		
2 Metrics • Occupied Bandwidth 4.5058 MH	-tz	Total Power	27.6 dE	3m		
Transmit Freq Error x dB Bandwidth	-2.253 kHz 5.030 MHz	% of OBW Powe x dB	er 99.00 -26.00			Lor
150-2'	Nov 05, 2024		.# 🔌	- 57		

NR2_5 M_OBW_Mid_256QAM_FullRB





	Input RF Coupling DC Align Auto	Input Z 50 Q Corr CCorr Freq Ret Inf / NFE Adaptiv		Trig Free Run Gate Off #IF Gain Low	Center Freq Avg/Hold 500 Radio Std: No		Hz	1.8800	Frequency 00000 GHz	Settings
Graph		And the Contract of the	Ref LvI Offset 28					Span 20.000	MHz	
cale/Div 10.0	dB		Ref Value 40.00	asm				CF Step 2.0000		
20.0 10.0		James	mmm		m			Aut Ma		
40.0	en mans and a start and a start and a start and a start				hay	mun-hjielth	PEAK	Freq Off 0 Hz	set	
50.0 Center 1.88000 Res BW 200.0			#Video BW 820.	00 kHz	Swa	Spar ep 1.00 ms (*	n 20 MHz 1001 pts)			
Metrics	t bied Bandwidth									
Occup		64 MHz		Total Power		30.7 dBm				
	mit Freq Error Bandwidth	-189.8 9.64	37 kHz 0 MHz	% of OBW Pov x dB	ver	99.00 % -26.00 dB				Los
15		Nov 05, 202 1:51:05 PM	24 💬				37			

NR2_10 M_OBW_Mid_BPSK_FullRB





Align Auto	Input Z 50 Q Atten 10 dB Corr Ccorr Preamp Off Freq Ret Int (S) NFE Adaptive	Gate Off Avg/Hol	reg 1 880000000 GHz d 500/500 td None	Center Frequency 1.880000000 GHz	Settings
Graph cale/Div 10.0 dB	Span 20.000 MHz				
óg	Ref Value 40.			CF Step 2.000000 MHz	
0.0	munn	monomi		Auto Man	
00 00 00 00 00 00 00	/	J.	PEAK WWW.WMWWWWWWWWWWW	Freq Olfset 0 Hz	
enter 1.88000 GHz Res BW 200.00 kHz	#Video BW 8		Span 20 MHz Sweep 1.00 ms (1001 pts)		
Metrics •					
8,9803 N	-199.31 kHz	Total Power % of OBW Power	30.3 dBm 99.00 %		
Transmit Freq Error		x dB	-26.00 dB		Lo

NR2_10 M_OBW_Mid_QPSK_FullRB





PASS NFE Adaptive Graph Ref Lv		
ale/Div 10.0 dB Ref Va	l Offset 28.48 dB lue 40.00 dBm	Span 20.000 MHz
		CF Step 2.000000 MHz
0.0 0.0	mannahaten mannan	Auto Man
00 00 0.0 0.0 0.0 0.0 0.0 0 0.0 0 0 0 0	annon Marine	PEAK 0 Hz
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		20 MHz
tes BW 200.00 kHz	Sweep 1.00 ms (1)	
Occupied Bandwidth 8.9621 MHz	Total Power 29.4 dBm	
Transmit Freq Error -189.01 kHz x dB Bandwidth 9.609 MHz	% of OBW Power 99.00 % x dB -26.00 dB	

NR2_10 M_OBW_Mid_16QAM_FullRB





RL Align Auto	Input Z 50 Q Atten 10 dB Corr Corr Preamp Off Freq Ret Int (S) NFE Adaptive	Gate Off Av	inter Freq. 1 880000000 GHz gjHold: 500/500 idio Std: None	Center Frequency 1.880000000 GHz	Settings
V PASS Graph Graph Graph	Ref Lvi Offsel Ref Value 40.			Span 20.000 MHz	
.0g 30.0 20.0				CF Step 2.000000 MHz Auto	
10.0 0.00 10.0				Man Freq Olfset	
20.0 30.0	/		Minham Maphbine	0 Hz	
50.0 Center 1.88000 GHz Res BW 200.00 kHz	#Video BW 8	20.00 kHz	Span 20 MHz Sweep 1.00 ms (1001 pts		
Metrics					
Occupied Bandwidth 8,9844 M	MHz	Total Power	28.8 dBm		
Transmit Freq Error x dB Bandwidth	-199.46 kHz 9.666 MHz	% of OBW Power x dB	99.00 % -26.00 dB		Loca
	Nov 05, 2024		.:: 💘 🛛 🗙		

NR2_10 M_OBW_Mid_64QAM_FullRB



Spectrum Analy Occupied BW	yzer 1	+						Ö	Frequency	• • 5
	Input RF Coupling DC Align: Auto	Input Z 50 Q Corr CCorr Freq Ret Int (S) NFE Adaptive	Atten 10 dB Preamp Off	Trig Free Run Gate: Off #IF Gain: Low	Center Freq Avg[Hold 50 Radio Std N		Hz		Frequency 00000 GHz	Settings
Graph			Ref Lvi Offset 28					Span 20.000	MHz	
cale/Div 10.0) dB		Ref Value 40.00	dBm				CF Step 2.0000		
20.0		mmm	Contraction	minun	way			Aul Ma		
10.0							PEAK	Freq Of 0 Hz	set	
-30 0	anner fran anner				~~~	mallimation	1 million and			
Center 1.8800			#Video BW 820.	00 kHz	Sw	Span eep 1.00 ms (1	001 pts)			
2 Metrics	•									
Occuj	pied Bandwidth									
-		60 MHz	-	Total Power		26.9 dBm				
	smit Freq Error Bandwidth	-186.23 k 9.675 M		% of OBW Pov x dB	ver	99.00 % -26.00 dB				Loc
10	all	Nov 05, 2024 1:52:34 PM	9		,		81			

NR2_10 M_OBW_Mid_256QAM_FullRB





EYSIGHT Input R Couples Align A	DG Corr CCorr	Preamp Off nl (S)	Trig Free Run Gale Off #IF Gain Low	Center Freq. 1 88000000 Avg Hold: 500/500 Radio Std: None	0 GHZ	Center Frequency 1.880000000 GHz	Settings
Graph ale/Div 10.0 dB	1	Ref LvI Offset 28 Ref Value 40.00				Span 30,000 MHz	
		Rei Value 40.00				CF Step 3.000000 MHz	
0.0	- June	h-international and the second states and the second states and the second states and the second states and the	and the second secon			Auto Man	
00 00 00 00 00 00 00 00 00	mont			human	PEAK	Freq Offset 0 Hz	
nter 1.88000 GHz es BW 300.00 kHz		#Video BW 1.200	00 MHz	Sweep 1.00 m	pan 30 MHz s (1001 pts)		
Netrics	•						
Occupied Ban	ndwidth 13.513 MHz		Total Power	30.8 d	Bm		
Transmit Freq x dB Bandwid		1.84 kHz 40 MHz	% of OBW Pow x dB	ver 99.00 -26.00			Lo

NR2_15 M_OBW_Mid_BPSK_FullRB





EYSIGHT Input RF Couping Align Au	Corr CCorr	Atten: 10 dB Preamp: Off i)	Trig: Free Run Gate: Off #IF Gain: Low	Center Free Avg/Hold 5 Radio Std 1		3Hz		Frequency 00000 GHz	Settings
Graph I	•	Ref LvI Offset 28					Span 30.000	MHz	
ale/Div 10.0 dB		Ref Value 40.00	dBm				CF Step 3.0000		
0.0	jum	-marine and a second	ogheanimitteran nasinter				Aut Ma		
00 00 10 kronthelhoradardes	www.man			hen	Norman and	PEAK WWW.M	Freq Off 0 Hz	set	
nter 1.88000 GHz es BW 300.00 kHz		#Video BW 1.200	DO MHZ	Sv	Spa veep 1.00 ms (in 30 MHz (1001 pts)			
Metrics Occupied Band									
Transmit Freq x dB Bandwidt			Total Power % of OBW Pow x dB	ver	30.5 dBn 99.00 % -26.00 dB	6			Loc

NR2_15 M_OBW_Mid_QPSK_FullRB





	f Input RF Coupling DC Align Auto	Input Z: 50 Q Corr CCorr Freq Ref. Inf (S NFE: Adaptive	Atten 10 dB Preamp Off	Trig Free Run Gate: Off #IF Gain: Low	Center Freq Avg Hold 50 Radio Std: N		SHZ		Frequency 00000 GHz	Settings
Graph cale/Div 10.0	1	IN C Hudping	Ref LvI Offset 28 Ref Value 40.00					Span 30.000	MHz	
.0g 30.0 20.0 10.0								CF Step 3.0000 Aut Ma	00 MHz Io	
40.0	omissionaliteritati	w			1 mighting	Mynatand	PEAK	Freq Off 0 Hz	fset	
50.0 Center 1.8800 Res BW 300.			#Video BW 1.20	DO MHZ	Sw	Spa weep 1.00 ms	in 30 MHz (1001 pts)			
Metrics	,									
Occu	pied Bandwidti 13.4	h 459 MHz		Total Power		29.4 dBn	ñ j			
	smit Freq Error Bandwidth	-374.87 14.36		% of OBW Pov x dB	ver	99.00 % -26.00 dB				Los
	~	Nov 05, 2024					×./			

NR2_15 M_OBW_Mid_16QAM_FullRB





RL Coupling DG Cor Align Auto Fre	II Z 50 Ω Atten: 10 dB r CCorr Preamp Off g Ret: Int (S) 5 Adaptive	Trig Free Run Gale Off #IF Gain Low	Center Freq. 1 88000000 Avg/Hold 500/500 Radio Std. None	GHz	Center Frequency 1.880000000 GHz	Settings
Graph Graph Icale/Div 10.0 dB	Ref Lvi Offset 2 Ref Value 40.00				Span 30.000 MHz	
					CF Step 3.000000 MHz Auto	
10.0 0.00	and a second and the	analogo laine african la comange de			Man	
10.0 20.0 30.0 meantiful presentition and the second			Munderham	PEAK	Freq Olfset 0 Hz	
50.0 Center 1.88000 GHz Res BW 300.00 kHz	#Video BW 1.20	00 MHz	System Signal Systems Systems Systems Systems 1.00 ms	oan 30 MHz s (1001 pts)		
Metrics •						
Occupied Bandwidth 13.492 MHz		Total Power	29.0 dE	Brn		
Transmit Freq Error x dB Bandwidth	-367.79 kHz 14.36 MHz	% of OBW Powe x dB	99.00 -26.00			Los
	ov 05, 2024		.:: 🔌			

NR2_15 M_OBW_Mid_64QAM_FullRB



Spectrum Analyzer 1	+					Ö	Frequency	· • 5
EYSIGHT Input RF		ten 10 dB eamp Off	Trig Free Run Gate Off #IF Gain Low	Center Freq. 1 Avg/Hold: 500/5 Radio Std: Non			Frequency 000000 GHz	Settings
Graph	Ref	Lvi Offset 28.				Span 30.00) MHz	
Scale/Div 10.0 dB	Ret	Value 40.00 d	BM				000 MHz	
10.0	Jamesin	Rosen Marcon	and a strange and a strange	-			uto an	
-10.0					PI	Freq C 0 Hz	ffset	
-30.0 -40.0 -50.0				kallan kan	and an and an and and and and and and an			
Center 1.88000 GHz Res BW 300.00 kHz	#Vīd	eo BW 1.200	0 MHz	Swee	Span 30 M p 1.00 ms (1001 p			
2 Metrics								
Occupied Bandwid								
	.440 MHz		Total Power		27.0 dBm			
Transmit Freq Erro x dB Bandwidth	r -386.43 kHz 14.42 MHz		% of OBW Pov x dB	Ver	99.00 % -26.00 dB			Loca
1001	2 Nov 05, 2024					1		
	2:00:42 PM				6.2	*		

NR2_15 M_OBW_Mid_256QAM_FullRB





Spectrum Analyzer 1 Occupied BW	+						Q	Frequenc	y + 5%
KEYSIGHT Input. RF RL	Input Z: 50 Q Corr CCorr Freq Ret Int (S) NFE Adaptive	Atlen 10 dB Preamp Off	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq Avg/Hold 5 Radio Std 1		GHz	Center F 1.88000	requency 0000 GHz	Settings
UV PASS	;	Ref LvI Offset 28					Span 40.000	MHz	
Scale/Div 10.0 dB		Ref Value 40.00		~~			CF Step 4.00000 Auto Mar)	
0.00 -10.0 -20.0 -30.0 -40.0 -50.0				hm		PEAK	Freq Offs 0 Hz	set	
Center 1.88000 GHz #Res BW 390.00 kHz	4	Video BW 1.600	00 MHz	Sw	Sp veep 1,00 ms	an 40 MHz (1001 pts)			
2 Metrics Occupied Bandwidth 17.92	7 MHz		Total Power		30.9 dB	m			
Transmit Freq Error x dB Bandwidth	-569.31 kH 18.98 MH		% of OBW Pov x dB	Wer	99.00 -26.00 c				Local
-501	Nov 05, 2024 2:06:27 PM	9				X			

NR2_20 M_OBW_Mid_BPSK_FullRB





	Align Auto	Input Z: 50 D Gorr CCorr Freq Ret Int (S NFE Adaptive		Trig Free Run Gale Off #IF Gain Low	Center Freq Avg/Hold 50 Radio Std N	0/500) GHz		Frequency 00000 GHz	Settings
Graph cale/Div 10.0	t dR		Ref Lvi Offset 28 Ref Value 40.00					Span 40.000	MHz	
.0g			Rei value 40,00					CF Step 4.0000		
0.0		provinse	and a second and the	Arrain Agency and Barrison Star	ren			Aut Ma		
0 00 10 0 20.0 30 0					henning	and	PEAK	Freq Off 0 Hz	fset	
40 0 50 0 Senter 1.88000 Res BW 390.0			#Video BW 1.600	DO MHZ	Swi		pan 40 MHz s (1001 pts)			
Metrics	,									
Occup	ied Bandwidt 17.	th .893 MHz		Total Power		30.6 dB	Brn			
	mit Freq Error Sandwidth	r -555.45 18.99		% of OBW Pow x dB	/er	99.00 -26.00 d				Loc
		Nov 05, 202	-				×./			

NR2_20 M_OBW_Mid_QPSK_FullRB





	Input RF Coupling DG Align Auto	Input Z: 50 0 Corr CCorr Freq Ret: Int (S) NFE: Adaptive	Atten 10 dB Preamp Off	Trig: Free Run Gale: Off #IF Gain: Low	Center Freq AvgjHold 50 Radio Std: N	0/500) GHz		Frequency 00000 GHz	Settings
Graph			Ref LvI Offset 28					Span 40.000	MHz	
cale/Div 10.0	dB		Ref Value 40.00	asm				CF Step 4.0000) 00 MHz	
20.0			-					Aut Ma		
10.0 20.0 30.7 40.0		~			humo	willian.	PEAK	Freq Off 0 Hz	fset	
50.0 Center 1.88000 Res BW 390.0			#Video BW 1.600	00 MHz	Sw		pan 40 MHz s (1001 pts)			
Metrics	•									
Occup	bied Bandwidth 17.93	5 MHz		Total Power		29.6 dE	Bm			
	mit Freq Error 3andwidth	-555.67 ki 18.97 Mi		% of OBW Pov x dB	/er	99.00 -26.00				Loc
		Nov 05, 2024 2:07:11 PM					×./			

NR2_20 M_OBW_Mid_16QAM_FullRB





RL Align Auto F	nput Z 50 D Atten 10 dB Sorr CCorr Preamp Off Freq Ret Int (S)	Trig Free Run Gate Off #IF Gain Low	Center Freq. 1 880000000 GHz AvgiHold 500/500 Radio Std. None	2 Center Frequency 1.880000000 GHz	Settings
Graph +	Ref LvI Offset 2			Span 40.000 MHz	
0 g 30.0 20.0	Ref Value 40.00	Jabm		CF Step 4.000000 MHz Auto	
10 0 0 00 10 0				Man Freq Otfset	
20.0 30.0 mintration and the second stranger and 40.0			Muhammalinhus	PEAK 0 Hz	
50 0 Senter 1.88000 GHz Res BW 390.00 kHz	#Video BW 1.6	DOO MHz	Span 4 Sweep 1.00 ms (10	40 MHz	
Metrics 1					
Occupied Bandwidth 17.894 M	Hz	Total Power	29.1 dBm		
Transmit Freq Error x dB Bandwidth	-540.34 kHz 18.98 MHz	% of OBW Powe x dB	er 99.00 % -26.00 dB		Los

NR2_20 M_OBW_Mid_64QAM_FullRB



Spectrum Analyzer 1	+			Frequency	1 🗳
RL + Align Auto	Input 2:50 0 Atten: 10 0 Corr CCorr Preamp 0 Freq Ret: Int (S) NFE Adaptive	ff Gate Off Avg H	Freq. 1.880000000 GHz old: 500/500 Std: None	Center Frequency 1.880000000 GHz	Settings
DV PASS	Ref LvI Offs	set 28.48 dB		Span 40.000 MHz	
Scale/Div 10.0 dB Log 30.0 20.0	Ref Value 4	0.00 dBm		CF Step 4.000000 MHz Auto	
10.0 0.00 10.0	a set share all and in a set in a set			Man Freq Offset	
20.0 30.0			PEAK	0 Hz	
-50 0 Center 1.88000 GHz #Res BW 390.00 kHz	#Video BW	1.6000 MHz	Span 40 MHz Sweep 1.00 ms (1001 pts)		
2 Metrics 🔹 🕴					
Occupied Bandwidth 17.91	I0 MHz	Total Power	27.1 dBm		
Transmit Freq Error x dB Bandwidth	-547.54 kHz 19.03 MHz	% of OBW Power x dB	99.00 % -26.00 dB		Local
1501	Nov 05, 2024		.:: 💓 🛛 🔀		

NR2_20 M_OBW_Mid_256QAM_FullRB



Spectrum Analy Swept SA	/zer 1 +	+					\$	Frequency	y •
KEYSIGHT	Input: RF Coupling, DC Align: Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten: 14 dB Preamp: Off	PNO Fast Gate Off IF Gain Low Sig Track Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 5 0 M WW WW W P P P P P P		Frequency 000000 GHz	Settings
Spectrum cale/Div 10 d	e Y2		Ref Level 4.00		Mkr	1 9.810 57 GHz -62.98 dBm	Sv	00000 GHz vept Span ero Span	
6.0 6.0								Full Span	
6.0							Start Fi 30,000	req 0000 MHz	
	production and the	มรั _{นก} ารุกประช./ป.1/27 ¹ /24/ ⁴ 844.472 ⁴⁴	^เ สมัน _{าย} ารอยุระบุระที่น่ายง	hearthalth an fhailtean an an star		and have required	Stop Fr 10.000	eq 0000000 GHz	
art 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz		JTO TUNE	
	NHz Trace Scale		Ŷ	Function	Sweep Function Width	p ~18.1 ms (1001 pts) Function Value	Contraction of the local division of the loc	00000 MHz Ito	
1 N 2 N 3	1 f 1 f	9.810 57 GHz 1.854 51 GHz					Freq O 0 Hz	lfset	-
4 5 6							X Axis Lo Li	g	Loc
5	2	P Dec 05, 2024 11:49:17 AM						-	

NR2_5 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



Spectrum Anal Swept SA	yzer 1	+					Ö	Frequency	5
	input RF Coupling Do Align Auto	Input Z 50 Ω Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten 14 dB Preamp Off	PNO Fast Gate Off IF Gain Low Sig Track Off	#Avg Type: Po Trig: Free Rur	wer (RMS 1 2 3 4 8 0 M WW WW W P P P P P P		Frequency 000000 GHz	Settings
Spectrum cale/Div 10	dB		Ref Level 4.00	Contra Co	Mkr	1 4.965 15 GHz -62.21 dBm	Sv	00000 GHz vept Span	
6.0		2						ro Span Full Span	
36.0 16.0 56.0			1				Start Fr 30,000	req 0000 MHz	
6.0	lana din paningan di ka	Andrew provident and a second	manufacture	nalpernal interventio	una provident such a	wing and given that Machine the net	Stop Fr 10.000	eq 0000000 GHz	
tart 30 MHz Res BW 1.0	MIL-		#Video BW 3.0	MHz	Euroo	Stop 10.000 GHz	1	JTO TUNE	
Marker Table Mode	Trace Sca	ale X	Y	Function	Function Width	Function Value	Contraction of the local division of the loc	00000 MHz	
1 N 2 N 3 4	1 1	4.965 15 GH 1.874 45 GH					Freq O 0 Hz	fset	
4 5 6							X Axis : Lo Li	g	Loc
5	C*	P Dec 05, 2024 11:50:19 AM	Ø						

NR2_5 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



Spectrum Analy Swept SA	/zer 1 💡	+					Ö	Frequency	· • 😤
	Input RF Coupling DG Align Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Adaptive	#Atten: 14 dB Preamp: Off	PNO Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 5 6 M WW WW W P P P P P P	5.0150	Frequency 100000 GHz	Settings
Spectrum Scale/Div 10 d	r B X		Ref Level 4.00 d		Mkr	1 9.720 84 GHz -63.27 dBm	= Sv	0000 GHz vept Span ro Span	
16.0 26.0								Full Span	
6.0 6.0							Start Fr 30.000	eq 1000 MHz	
	marian	فلمحاوج إوستاجه لمالي المستهام عريانا أعلسه	last yest 2019-225-4411-9	Server Marchaeler	yan da ^{mi} nafaran wakar	anger angerer and	Stop Fr 10.000	eq 1000000 GHz	
tart 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz	AL	JTO TUNE	
Res BW 1.0 M Marker Table Mode	Trace Scale		Y	Function	Sweep Function Width	18.1 ms (1001 pts) Function Value	CARD COLOR	0000 MHz to	
1 N 2 N 3		9.720 84 GHz 1.904 36 GHz					Freq OI 0 Hz	fset	-
4 5 6							X Axis S Lo Lir	g	Loca
5		P Dec 05, 2024 11:51:18 AM	Ð					-	

NR2_5 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



Spectrum Anal Swept SA	Input_RF	hnput Z: 50 Ω Corr CCorr	#Atten 14 dB Preamp Off	PNO Fast Gate: Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 7 6	Center	Frequency Frequency	Settings
RL 🛶	Align Auto	Freq Ref. Int (S) NFE: Adaptive	Pleating Oil	IF Gain Low Sig Track Off	ing. Hee Kun	M WW WW W	Statistics.	00000 GHz	Seninga
Spectrum scale/Div 10 c		2	Ref Level 4.00	dBm	Mkr1	3.738 84 GHz -63.21 dBm	Sw	10000 GHz vept Span ro Span	
16.0							F	Full Span	
96.0 16.0			1				Start Fr 30.000	eq 1000 MHz	
	Mar Company	enterter and an an entertainty of	net the net from the product of the	HARAR BALAN	Henry Johnson Manufathan Mar	and an	Stop Fr 10.000	eq 000000 GHz	
36.0 tart 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz	AL	JTO TUNE	
Res BW 1.0 Marker Table Mode	MHz Trace Sca	le X	Ŷ	Function	Sweep	-18.1 ms (1001 pts)	and the second second	0000 MHz to	
1 N 2 N 3	1 f	3.738 84 GHz 1.854 51 GHz	-63.21 dBm				Freq Of 0 Hz		
4 5 6							X Axis S Lo Lir	g	Loc
5	C*	2 Dec 05, 2024 11:52:22 AM	Ð						

NR2_10 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



RL Align Auto	Input Z 50 Ω Corr CCorr Freq Ref. Int (S) NFE Adaptive	#Atten: 14 dB Preamp: Off	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type Po Trig: Free Run	wer (RMS 1 2 3 4 8 6 M WW WW W P P P P P P	Center Frequency 5.015000000 GHz Span	Settings
Spectrum		Ref Level 4.00 d	1Bm	Mkr	5.005 03 GHz -62.38 dBm	9.97000000 GHz Swept Span Zero Span	
16.0						Full Span	
36.0 46 0 56 0		1				Start Freq 30,000000 MHz	
66.0 76.0 Magangadan Banwaran Int 86.0	net the second second second	- Harrison - Angel	nennerskiller forstelserer	ווישאינינוייניאינטיישאייני	สมารณีสมาร์ที่สุขารัญหารณ์ทางสมุ	Stop Freq 10.000000000 GH	z
Start 30 MHz Res BW 1.0 MHz		#Video BW 3.0	MHz	Sween	Stop 10.000 GHz	AUTO TUNE	
5 Marker Table 🔹 🔹		24				997.000000 MHz	
Mode Trace Scale	X 5.005 03 GHz 1.874 45 GHz		Function I	Function Width	Function Value	Man Freq Offset 0 Hz	
4 5 6						X Axis Scale Log Lin	Lo
501	Dec 05, 2024 11:53:23 AM				\mathbb{N} – \mathbb{X}	Par 1.00	

NR2_10 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



Spectrum Anal Swept SA	yzer 1	+		-			ø	Frequency	
	Input RF Coupling DC Align Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten 14 dB Preamp Off	PNO Fast Gate Off IF Gain Low Sig Track Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 8 0 M WW WW W P P P P P P	the second se	Frequency 00000 GHz	Settings
Spectrum cale/Div 10 (2	Ref Level 4.00	Constrained and the	Mkr	1 9.690 93 GHz -63.30 dBm	Sw	0000 GHz ept Span ro Span	
100 16.0								ull Span	
26.0 36.0 46.0							Start Fr 30.000	eq 000 MHz	
	and the way wanted	- Augustania (19 Bill a fina fina an aide	and and an and an	wanter territeren	(estimation) and a second	and an and a state of the state	Stop Fr 10.000	eq 000000 GHz	
tart 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz	1. 1. 1. 1.	ITO TUNE	
Res BW 1.0 Marker Table Mode	VIHz Trace Scal		Y	Function	Sweep Function Width	p ~18.1 ms (1001 pts) Function Value		0000 MHz to	
1 N 2 N 3	1 f 1 f	9.690 93 GHz 1.904 36 GHz					Freq Of 0 Hz	lset	
4 5 6							X Axis S Lo Lir	g	Loc
っ	C*	2 Dec 05, 2024 11:54:22 AM						-	

NR2_10 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



	Input RF Coupling DC Align Auto	Input Z 50 Q Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten: 14 dB Preamp: Off	PNO Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 5 6 M WW WW W P P P P P P	5.01500	requency 0000 GHz	Settings
Spectrum cale/Div 10 d	B A	2	Ref Level 4.00 d	1Bm	Mkr1	8.105 70 GHz -63.07 dBm	Swe	000 GHz ept Span o Span	
6.0 6.0							FL	ill Span	
3.0 3.0						1	Start Fre 30.0000		
	whereway	ang	Martin Maran and State	and the property of the second	Manananan	ntragentes the Breast and the	Stop Frei 10.0000	9 00000 GHz	
art 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz	AUT	TO TUNE	
tes BW 1.0 M Marker Table Mode	MHz Trace Sca		Y	Function F	Sweep				
1 N 2 N 3	1 f 1 f	8,105 70 GHz 1.854 51 GHz					Freq Offs 0 Hz	et.	
4 5 6							X Axis So Log Lin		LO
5	2	? Dec 05, 2024 11:55:25 AM				N - X			

NR2_15 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



V NFE Adaptive Spectrum • icale/Div 10 dB • .09 • 600 • 26.0 • 36.0 • 36.0 • 56.0 •	Ref Level 4.00 dBm	nack: Off Mkr	<u>РРРРР</u> 1 8.025 94 GHz -62.85 dBm	Span 9.97000000 GHz Swept Span Zero Span Full Span	
60 60 60 60				Full Span	
5.0 5.0					
			1	Start Freq 30.000000 MHz	
0 anger wand out and a start	ra sufatura ana ana ana ana ana ana ana ana ana a	whereas an an array array and an array	สฟปกฎหมะอารุปพละการปล่าสตรท	Stop Freq 10.000000000 GHz	
5.0 art 30 MHz	#Video BW 3.0 MHz		Stop 10.000 GHz	AUTO TUNE	
tes BW 1.0 MHz Marker Table T Mode Trace Scale X	Y Func		p ~18.1 ms (1001 pts) Function Value	CF Step 997.000000 MHz Auto Man	
1 N 1 f 8.025 94 GHz 2 N 1 f 1.874 45 GHz 3 4	-62.85 dBm -1.198 dBm			Freq Offset 0 Hz	
5 6				X Axis Scale Log Lin	Lo

NR2_15 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



Spectrum Analy Swept SA	vzer 1	+					ø	Frequency	5
KEYSIGHT	Input_RF Coupling_DG Align_Auto	Input Z 50 Q Corr CCorr Freq Ref. Int (S) NFE. Adaptive	#Atten: 14 dB Preamp: Off	PNO Fast Gate Off IF Gain Low Sig Track Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 8 0 M WW WW W P P P P P P		Frequency 00000 GHz	Settings
Spectrum cale/Div 10 d	ie Y		Ref Level 4.00	and restored.	Mkr	1 3.788 69 GHz -63.07 dBm	Sw	0000 GHz rept Span ro Span	
16.0							F	ull Span	
36.0 16.0			1				Start Fr 30.000	eq 000 MHz	
	and a series of the second of the	and an and a second statements	with a second where we are	les reference for a service of the s	nhalimetrational and a state of the	an naan mada la ana aha maraka	Stop Fr 10.000	eq 000000 GHz	
86.0 tart 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz	AL	ITO TUNE	
Res BW 1.0 M Marker Table Mode	AHz Trace Scale	×	Ŷ		Sweep Function Width	p ~18.1 ms (1001 pts) Function Value	Contraction of the	0000 MHz to	
1 N 2 N 3 4	1 f 1 f	3.788 69 GHz 1.894 39 GHz	-63.07 dBm -1.443 dBm				Freq Of 0 Hz	fset	
5							X Axis S Lo Lir	g	Loc
5	C -	P Dec 05, 2024 11:57:27 AM	9					-	

NR2_15 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



EYSIGHT	Align Auto	Input Z 50 Q Corr CCorr Freq.Ref. Int (S) NFE. Adaptive	#Atten: 14 dB Preamp: Off	PNO Fast Gate Off IF Gain Low Sig Track Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 7 6 M WW WW W P P P P P P	Center Free 5.0150000		Settings
Spectrum cale/Div 10 d	B Y:		Ref Level 4.00 c	La Distriction of the	Mkr	3.838 54 GHz -62.75 dBm	Span 9.9700000 Swept Zero S	Span	
6.0							Full	Span	
6.0 6.0							Start Freq 30.000000	MHz	
	an president and an	Anne Lander Har Lander Har Hard	- Maria and Maria and Maria	وريد والمجار والمحاولة المحاولة المحاورة	م. مەلەر مەرەپىرىكى مەلەر مەلەر مەرەپىرىكى مەرەپىرىكى مەرەپىرىكى مەرەپىرىكى مەرەپىرىكى مەرەپىرىكى مەرەپىرىكى مە	and a second and a second s	Stop Freq 10.000000	000 GHz	
art 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz	AUTO	TUNE	
	IHz Trace Scale		Y	Function	Sweep Function Width	18.1 ms (1001 pts) Function Value	CF Step 997.00000 Auto Man	0 MHz	
1 N 2 N 3	1 f 1 f	3.838 54 GHz 1.854 51 GHz					Freq Offset 0 Hz		
4 5 6							X Axis Scal Log Lin	e	LO

NR2_20 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



Spectrum Analy Swept SA	yzer 1 🔹	+					Ö	Frequency	
EYSIGHT	Input RF Coupling DC Align Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten: 14 dB Preamp Off	PNO Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 8 0 M WW WW W P P P P P P		Frequency 000000 GHz	Settings
Spectrum cale/Div 10 d		De se baseros	Ref Level 4.00		Mkr	1 4.067 85 GHz -63.09 dBm	Sv	00000 GHz vept Span	
6.0	¥2							ro Span Full Span	
6.0 6.0			1				Start F 30,000	req 0000 MHz	
	1445-19-45-19-19-19-19-19-19-19-19-19-19-19-19-19-	way film and some product a first of	Construction of the second second	reneway to man	an an de la construction de la construcción de la construcción de la construcción de la construcción de la cons	and an	Stop Fi 10.000	req 0000000 GHz	
tart 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz	1	JTO TUNE	
Res BW 1.0 M Marker Table Mode	MHz Trace Scale		Y	Function	Sweep Function Width	p ~18.1 ms (1001 pts) Function Value	Concernance of	00000 MHz Ito	
1 N 2 N 3		4.067 85 GHz 1.874 45 GHz					Freq O 0 Hz		-
5							X Axis Lo	g	Loc
5	C*	P Dec 05, 2024 11:59:32 AM	D					-	

NR2_20 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



Spectrum Anal Swep! SA	yzer 1	+					ø	Frequency	• •
KEYSIGHT	Input RF Coupling D Align Auto	G Input Z 50 Ω Corr CCorr Freq Ref. Int (S) NFE Adaptive	#Atten 14 dB Preamp Off	PNO Fast Gate Off IF Gain Low Sig Track Off	#Avg Type: Po Trig: Free Rur	wer (RMS 1 2 3 4 8 0 M WW WW W P P P P P P	Center F 5.01500	equency 0000 GHz	Settings
Spectrum cale/Div 10 c	iB	¥2	Ref Level 4.00	Contraction of the	Mkr	1 9.710 87 GHz -62.95 dBm	Swe	000 GHz pt Span Span	
1 00 16.0							FL	ll Span	
6.0 6.0							Start Fre 30.0000		
	ndahannan	a hay have been an a farmer of the	and the second	hangene the happen	www.weg.utriden.yee	and a start and a start and a start and a start	Stop Fre 10.0000	1 00000 GHz	
30.0 tart 30 MHz			#Video BW 3.0	MHz		Stop 10.000 GHz		OTUNE	
Res BW 1.0 I Marker Table Mode		ale X	¥		Swee Function Width	p ~18.1 ms (1001 pts) Function Value	CF Step		
1 N 2 N 3	1	f 9.710 87 GH f 1.894 39 GH					Freq Offs 0 Hz	et	-
4 5 6							X Axis So Log Lin	ale	Loc
う	(*	2 Dec 05, 2024 12:00:31 PM	Ø				-	-	

NR2_20 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



Spectrum Analyz Swept SA		÷		-			ø	Frequency	
	nput RF Soupling DC Align Auto	Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten 0 dB Preamp Off	PNO Fast Gate Off IF Gain High Sig Track Off	#Avg Type: Power Trig: Free Run	(RMS 12 34 50 M WW WW W P P P P P P P		Frequency 000000 GHz	Settings
Spectrum cale/Div 10 dB			Ref Level -20.0		Mkr	1 19.13 GHz -75.23 dBm	Sw	0000 GHz ept Span ro Span	
							F	ull Span	
0.0							Start Fr 10.000	eq 000000 GHz	
0.0 0.0							Stop Fr 20.000	eq 000000 GHz	
						•1	AL	TO TUNE	
0.0 0.0 0.0	yModia.Avan	derthamir an abald 194	overkytelanderskapel	Hilofronzierika (starona	ladate estational	kapitarkatikkankarradilah	CF Step 1.0000 Au	00000 GHz to	
110							Freq Of 0 Hz	lset	
art 10.000 GH			#Video BW 3.0	0 MHz	Sweep ~	Stop 20.000 GHz 18.5 ms (1001 pts)	X Axis S Lo Lir	g	Loc
5	3	P Dec 05, 2024 11:49:29 AM							

NR2_5 M_Conducted Spurious(Above10 G)_Low_BPSK_1RB



Spectrum Analyz Swept SA		÷					Ö	Frequency	• • 5
	nput RF Coupling DC Align Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten 0 dB Preamp Off	PNO Fast Gate: Off IF Gain: High Sig Track: Off	#Avg Type: Pow Trig: Free Run	er (RMS <mark>123450</mark> M wwwww P P P P P P P		Frequency 000000 GHz	Settings
Spectrum cale/Div 10 dE	*		Ref Level -20.0		MI	(r1 19.52 GHz -75.60 dBm	Sw	0000 GHz rept Span ro Span	
							F	ull Span	
10.0 50.0							Start Fr 10.000	eq 000000 GHz	
60.Q							Stop Fr 20.000	eq 000000 GHz	
						•1-	AL	TO TUNE	
0.0 0 0 100	ardanila (kun	ahan Der Markan das Alteria d ^{as}	the house for the bound	(Alexandronana)	n dan setila ya	nyalanchan philippilan and an an	CF Step 1.0000 Au Ma	00000 GHz to	
110							Freq Of 0 Hz	lset	_
tart 10.000 GH Res BW 1.0 M			#Video BW 3.0	MHz	Sweep	Stop 20.000 GHz ~18.5 ms (1001 pts)	X Axis S Lo Lir	g	Loc
50	3	? Dec 05, 2024 11:50:31 AM							

NR2_5 M_Conducted Spurious(Above10 G)_Mid_BPSK_1RB



Spectrum Analy Swept SA	zer 1	+					¢	Frequency	· • 👬
	Input: RF Coupling, DC Align: Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S) NFE. Adaptive	#Atten 0 dB Preamp Off	PNO Fast Gate: Off IF Gain High Sig Track Off	#Avg Type: Pow Trig: Free Run	/er (RMS <mark>123450</mark> М WW WW W Р Р Р Р Р Р Р		Frequency 000000 GHz	Settings
Spectrum cale/Div 10 d	B		Ref Level -20.0		M	kr1 18.98 GHz -73.89 dBm	Sw	0000 GHz ept Span ro Span	
								ull Span	
10.0 50.0							Start Fr 10.000	eq 000000 GHz	
i0.0							Stop Fr 20.000	eq 000000 GHz	
						1	AL	TO TUNE	
	daabax daxbaya	nderyddialliadhaenadd	antik perintah tahun d	nantranimipatipumin	unuadiohitin	dischanter Verteren metriget	CF Ster 1.0000 Au Ma	00000 GHz to	
110							Freq OI 0 Hz	lset	_
tart 10.000 GI Res BW 1.0 N			#Video BW 3.0	MHz	Sweep	Stop 20.000 GHz ~18.5 ms (1001 pts)	X Axis S Lo Lir	g	Loca
5		2 Dec 05, 2024 11:51:30 AM	D						

NR2_5 M_Conducted Spurious(Above10 G)_High_BPSK_1RB



Align Auto Fr	put Z 50 Ω #Atten: 0 dB orr CCorr Preamp Off req Ref. Int (S) FE Adaptive	PNO Fast #Av Gate Off Trig IF Gain High Sig Track Off	g Type: Power (RMS 1234) Free Run М WW WW Р Р Р Р Р	15.00000000 GH	z
Ni Spectrum v ale/Div 10 dB	Ref Level -20.0		Mkr1 19.53 GH -75.14 dBr	Span 10.0000000 GHz	
				Full Span	
0.0				Start Freq 10.000000000 GH	z
				Stop Freq 20.000000000 GH	z
.0			1-	AUTO TUNE	
10 เกมช์ยน ที่สุรพระรถใจแก่ไปใบแหน่มี 10	redeverale/likerouse/kikies/ki	Hara, in purpose, 15 - uniter 14	n-http://www.anhiptonial.Weisala.cog	CF Step 1.000000000 GHz Auto Man	
10				Freq Offset 0 Hz	
urt 10.000 GHz es BW 1.0 MHz	#Video BW 3.0) MHz	Stop 20.000 GH Sweep ~18.5 ms (1001 pts		Loc

NR2_10 M_Conducted Spurious(Above10 G)_Low_BPSK_1RB



L Coupling DC Align Auto	Input Z 50 Q #Atten 0 dB Corr CCorr Preamp Off Freq Ref. Int (S) NFE Adaptive	PNO Fast Gate: Off IF Gain: High Sig Track: Off	#Avg Type: Power (RMS 1 2 3 4 5 6 Trig: Free Run M WW WW W P P P P P P P	Center Frequency 15.000000000 GHz	Settings
Spectrum v cale/Div 10 dB	Ref Level -20.	00 dBm	Mkr1 19.42 GHz -75.60 dBm	10.000000000112	
				Full Span	
0.0				Start Freq 10.000000000 GHz	
0.0				Stop Freq 20.000000000 GHz	
0.0			1	AUTO TUNE	
o o oo	intuality of your participation of the second s	Allandros Albaro sak.,	, poolanni addi af an de jariik de eard Herei Turreboden	CF Step 1.000000000 GHz Auto Man	
110				Freq Offset 0 Hz	-
art 10.000 GHz tes BW 1.0 MHz	#Video BW 3	.0 MHz	Stop 20.000 GHz Sweep ~18.5 ms (1001 pts)		Loc

NR2_10 M_Conducted Spurious(Above10 G)_Mid_BPSK_1RB



Spectrum Analy. Swept SA		+ Input Ζ: 50 Ω	#Atten: 0 dB	PNO Fast	#Aug Turse I		¢	Frequency	y • 🗜
	Coupling DC Align Auto	Corr CCorr Freq Ref. Int (S) NFE: Adaptive	Preamp Off	Gate Off IF Gain High Skg Track Ø	ing: Hee Ri	Power (RMS 1 2 3 4 5 un M WW WW P P P P P	15.00	Frequency 0000000 GHz	Settings
Spectrum cale/Div 10 dl	3		Ref Level -20.0			Mkr1 19.21 GF -75.33 dB	IZ 10.00	00000 GHz wept Span ero Span	
								Full Span	
10.0 50.0							Start F 10.00	req 0000000 GHz	
60.0							Stop F 20.00	req 0000000 GHz	
						↓ 1-		UTO TUNE	
	darihatasa dar	endlanthir Unukuphi	olondia (14 Abble)	Markad Alipeksed	ilider paters and parts	gt _{all} erangerstallfyblede	A	:p 000000 GHz uto an	
110							Freq C 0 Hz	lfset	_
tart 10.000 GH Res BW 1.0 M			#Video BW 3.	0 MHz	Swa	Stop 20.000 G ep ~18.5 ms (1001 p		og .	Loc
50	3	? Dec 05, 2024 11:54:34 AM							

NR2_10 M_Conducted Spurious(Above10 G)_High_BPSK_1RB



L Chilpling DG C Align Auto F	nput Z: 50 Q #Atten: 0 dB Corr CCorr Preamp Off Freq Ref: Int (S) NFE: Adaptive	PNO Fast Gate Off IF Gain High Sig Track Off	#Avg Type: Power (RMS 1 2 3 4 Trig: Free Run M WW WW P P P P P	15.00000000 GHz	Settings
Spectrum v cale/Div 10 dB	Ref Level -20	0.00 dBm	Mkr1 19.19 GH -75.23 dB	10,000000 Onit	
				Full Span	
0.0				Start Freq 10.000000000 GHz	
o.a				Stop Freq 20.000000000 GHz	
0.0			•1-	AUTO TUNE	
0.0 100 100 100 100 100 100 100 100 100 1	lah hinya kana kana kana kana kana kana kana k	WMultimmentations saverys	personal and the state of the s	CF Step 1.00000000 GHz Auto Man	
110				Freq Offset 0 Hz	
art 10.000 GHz Res BW 1.0 MHz	#Video BW	3.0 MHz	Stop 20.000 G Sweep ~18.5 ms (1001 p		Lo

NR2_15 M_Conducted Spurious(Above10 G)_Low_BPSK_1RB



L +- Coupling DC C Align Auto Fi	nput Z 50 Ω #Atten 0 dB Corr CCorr Preamp Off Freq Ref. Int (S) IFE Adaptive	PNO Fast Gate: Off IF Gain High Sig Track Off	#Avg Type: Power (RMS 1 2 3 4 5 Trig: Free Run M WW WW P P P P P	15.00000000 GHz	Settings
Spectrum v sale/Div 10 dB	Ref Level -20.0		Mkr1 19.59 GH -74.22 dBr	Span 10.0000000 GHz	
				Full Span	
0.0				Start Freq 10.00000000 GHz	
9.0				Stop Freq 20.000000000 GHz	
9.0			1	AUTO TUNE	
0.0 Nathaulaithachinnealanteanna 10	have an international and the second states of	historiationaripuus	a Alien a sinjikti yaka pilikakata a se shikaba da	CF Step 1.000000000 GHz Auto Man	
10				Freq Offset 0 Hz	
art 10.000 GHz es BW 1.0 MHz	#Video BW 3.	0 MHz	Stop 20.000 GF Sweep ~18.5 ms (1001 pt		Los

NR2_15 M_Conducted Spurious(Above10 G)_Mid_BPSK_1RB



Spectrum Analy Swept SA		÷		-			Ö	Frequency	• •
	Input RF Coupling DC Align Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten: 0 dB Preamp Off	PNO Fast Gate: Off IF Gain High Sig Track Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 5 0 M WW WW W P P P P P P		Frequency 000000 GHz	Settings
Spectrum cale/Div 10 dl	B		Ref Level -20.0		N	lkr1 13.88 GHz -75.99 dBm	Sv	0000 GHz vept Span ro Span	
								Full Span	
0.0							Start Fi 10.000	eq 0000000 GHz	
							Stop Fr 20.000	eq 000000 GHz	
			1-					JTO TUNE	
o o <mark>Ault p^aly</mark> a o	Hurth Alban Andres	ada an	a a la construction de la constr	arthullinkinhaal	ny, Nationy, chiller	pp, we shared the second spectra	CF Ste 1.0000 AL	00000 GHz to	
110							Freq O 0 Hz	liset	-
art 10.000 GH Res BW 1.0 M			#Video BW 3.0	MHz	Sweep	Stop 20.000 GHz ~18.5 ms (1001 pts)		9	Loc
5		P Dec 05, 2024 11:57:38 AM						-	

NR2_15 M_Conducted Spurious(Above10 G)_High_BPSK_1RB



L Coupling DG G Align Auto Fr	put Z 50 Q #Atten 0 dB orr CCorr Preamp Off reg Ref. Int (S) IFE Adaptive	PNO Fast #. Gate:Off T IF Gain High Sig Track Off	Avg Type: Power (RMS 1 2 3 4 5 6 nig: Free Run M WW WW W P P P P P P	Center Frequency 15.000000000 GHz	Settings
Spectrum v sale/Div 10 dB	Ref Level -20.0	ter a demonstrate	Mkr1 19.79 GHz -75.94 dBm	Span 10,0000000 GHz Swept Span Zero Span	
				Full Span	
0.0				Start Freq 10.000000000 GHz	
οσ 				Stop Freq 20.000000000 GHz	
0.0				AUTO TUNE	
0.0 <mark>Mark, MARAWWW, with Markelling</mark> 0 0	ochelligen vergen der beiten den delt der verge	haldilikiit halaaydahaan talafaad	eleteret-mandeler fölkalige konstander kär som skala skylleter Letteret-mandeler fölkalige	CF Step 1.000000000 GHz Auto Man	
10				Freq Offset 0 Hz	-
art 10.000 GHz tes BW 1.0 MHz	#Video BW 3.	0 MHz	Stop 20.000 GHz Sweep ~18.5 ms (1001 pts)	X Axis Scale Log Lin	Loc

NR2_20 M_Conducted Spurious(Above10 G)_Low_BPSK_1RB



Spectrum Analyz Swept SA	zer 1 🔻	+					Ö	Frequency	y • 🗧
	Input RF Coupling DC Align Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S) NFE. Adaptive	#Atten: 0 dB Preamp Off	PNO Fast Gate: Off IF Gain High Sig Track Off	#Avg Type: F Trig: Free Ru	Power (RMS 1 2 3 4 5 0 IN WWWWW PPPPPF	15.00	Frequency 0000000 GHz	Settings
Spectrum cale/Div 10 dE	* 3		Ref Level -20.0			Mkr1 19.13 GHz -75.75 dBm	Span 10.000	00000 GHz vept Span rro Span	
								Full Span	
10.0 50.0							Start F 10.000	req 0000000 GHz	
50.0							Stop F 20.000	req 0000000 GHz	
						1	A	JTO TUNE	
	ha Maanil A Alip	jelinauruska yddiaendd	i, she i she in the in	akim.eupalaistaa	adala Jacindi Anim	gtafgeungeleinik-Mahararlegast		000000 GHz Ito	
110							Freq O 0 Hz	ffset	
tart 10.000 GH Res BW 1.0 M			#Video BW 3.	0 MHz	Swee	Stop 20.000 GH p ~18.5 ms (1001 pts		g	Loc
50	3	? Dec 05, 2024 11:59:43 AM	D					-	

NR2_20 M_Conucted Spurious(Above10 G)_Mid_BPSK_1RB



L Coupling DC Co Align Auto Fr	iput Z 50 Ω #Atten 0 dB orr CCorr Preamp Off req Ref. Int (S) FE Adaptive	PNO Fast #Av Gate Off Trig IF Gain High Sig Track Off	vg Type: Power (RMS 1 2 8 4 1 p: Free Run P P P P P	15.00000000 GHz	Settings
Spectrum v sale/Div 10 dB	Ref Level -20.0		Mkr1 19.74 GH -76.48 dB	IZ 10.0000000 GHz	
				Full Span	
0.0				Start Freq 10.000000000 GHz	
0.0 0.0				Stop Freq 20.000000000 GHz	
0.0				AUTO TUNE	
^{0.0} <mark>11./10./15./14.a./11./14.a./11/1</mark> a.a. oo	n napolovní kodkopernil krod	rlen, tendaskisilihandask	ntohtaaladittiinuuttiitiinahaikk	CF Step 1.000000000 GHz Auto Man	
10				Freq Offset 0 Hz	-
art 10.000 GHz tes BW 1.0 MHz	#Video BW 3.0	MHz	Stop 20.000 G Sweep ~18.5 ms (1001 p		Loc

NR2_20 M_Conducted Spurious(Above10 G)_High_BPSK_1RB



RL Coupling DC Align Auto	Input Z:50 Ω #Att	mp Off Gate IF Ga	Best Wide # Off T in: Low ack: Off	Avg Type: Power (Ri rig: Free Run	MS121456 AWWWWW AAAAAA	Meas Se Avg Hold Number 10	Settings
Spectrum T Scale/Div 10 dB	Ref Ly	I Offset 28.48 dB vel 28.48 dBm			50 000 GHz 8.634 dBm	Avg Type Power (RMS) Auto Man	Limits Meas Standard
18.5		1~	1		_	K Meas Setup Summary Table	Legacy Compat
8.48						Auto Couple	Advanced
152		, L			Q11-13 00 dBm	Meas Preset	Global
31:5 ••• 5							
51.5 Augurun and a second	on the address of the second				here have been a second		
enter 1.850000 GHz Res BW 30 kHz	#Vid	eo BW 100 kHz			ipan 4.000 MHz .01 s (1001 pts)		Loca
#Res BW 30 kHz	Nov 05, 2024			#Sweep ~1.	.01 s (1001 pts)		

NR2_5 M_Band Edge_Low_BPSK_1RB



Spectrum Analyzer 1 Swept SA	+					ø	Meas Setu	ip 🔹 🔛
RL Align AL	DC Corr CCorr	#Atten 10 dB Preamp Off	PNO Best Wide Gate Off IF Gain Low Sig Track Off	#Avg Type: Power (RM: Trig: Free Run	5 12345 AWWWWW AAAAAA	Avg Hol 10	d Number	Settings
ovr 1 Spectrum Scale/Div 10 dB Log	NEC Adaptive	Ref LvI Offset 28.4 Ref Level 28.48 dE	8 dB	Mkr1 1.850 -27		Avg Typ Power Au Ma	(RMS)	Limits Meas Standard
18.5					_	/ Me	as Setup mary Table	Legacy Compat
8.48			procession	Mannen minace and a straight		Au	to Couple	Advanced
-1 52					011-11 00 dBm	Me	as Preset	Global
21.5 31:5 41.5		1'						
61.5								
Center 1.850000 GHz Res BW 51 kHz		#Video BW 160 H	(Hz		an 4.000 MHz 1 s (1001 pts)			Local
50	Nov 05, 2024 1:41:00 PM	9						

NR2_5 M_Band Edge_Low_BPSK_FullRB



Spectrum Analyzer Channel Power		+					ø	Frequenc	v • 55
	ul, RF iping DC in Auto	Input Z 50 0 Corr CCorr Freq Ret Int (S) NFE Adaptive	Atten 10 dB Preamp Off #PNO Fast	Trig: Free Run Gale: Off #IF Gain: Low	Center Freq 1 8485000 AvgiHold 300/300 Radio Std: None	000 GHz		Frequency 00000 GHz	Settings
Graph Graph cale/Div 10.0 dB		чист лиариче	Ref LvI Offset 28 Ref Value 30.00				Span 4.0000	MHz	
.0g			Kel value 30,00				CF Step 400.00		
10 0							Aut Ma	0	
							Freq Off 0 Hz	lset	1
0.0						مسمر		_	
10.0 50.0		mm		m					
60 0									
enter 1.848500 G es BW 39.000 kH			Video BW 390.0	0 kHz*	Sweep 3.20	Span 4 MHz ms (1001 pts)			
Metrics									
Total Channel Po	ower	-26.39 dBm / 1.0	00 MHz						
Total Power Spe	ctral Density	-86.39 c	iBm/Hz						Loca
50	17	Nov 05, 2024 1:41:10 PM	9			- X			

NR2_5 M_Extended Band Edge_Low_BPSK_FullRB



EYSIGHT Input RF L Align Auto	Input Z 50 Ω #Atten 10 dB Corr CCorr Preamp Off Freq Ref. Int (S) NFE Adaptive	PNO Best Wide #Avg Type: Powi Gate Off Trig: Free Run IF Gain Low Sig Track: Off	er (RMS123456 AWWWWW AAAAAA	Avg Hold Number 10	Settings
Spectrum v cale/Div 10 dB	Ref Lvi Offset 28 Ref Level 28.48 (8 dB Mkr1 1	.910 004 GHz -18.296 dBm	Avg Type Power (RMS) Auto Man	Limits Meas Standard
8.5				Meas Setup Summary Table	Legacy Compat
3.48				Auto Couple	Advance
1 52			D11-13 00 dBm	Meas Preset	Global
11.5					
11.5					
1.5		and a second and a s	RMS		
31.5					Loca
enter 1.910000 GHz Res BW 30 kHz	#Video BW 100		Span 4.000 MHz ~1.01 s (1001 pts)		Loui

NR2_5 M_Band Edge_High_BPSK_1RB



Swept SA KEYSIGHT Input RF Coupling DC Align Auto	H Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten 10 dB Preamp Off	PNO Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: P Trig: Free Ru	tower (RMS <mark>121456</mark> n AWWWWW A A A A A A A	Avg Hold	Meas Sett	Settings
tor 1 Spectrum • Scale/Div 10 dB Log		Ref LvI Offset 28. Ref Level 28.48 d	48 dB	Mkr1	1.910 000 GHz -29.983 dBm	Avg Type Power (Auto Mar	RMS)	Limits Meas Standard
18.5							as Setup mary Table	Legacy Compat
8.48						Aut	o Couple	Advanced
152					011-13 00 dBm	Me	as Preset	Global
31:5		1			- DMS-			
51.5			manne	and the second	advance of the second and a			
61.5								
Center 1.910000 GHz Res BW 51 kHz		#Video BW 160	kHz	#Sw	Span 4.000 MHz eep ~1.01 s (1001 pts)			Loca
1501	? Nov 05, 2024 1:46:59 PM	0						

NR2_5 M_Band Edge_High_BPSK_FullRB



KEYSIGHT Input RF RL ++ Alan Auto	Input Z 50 Q Cerr CCorr Freq Ref. Inf (S) NFE Adaptive	Atten: 10 dB Preamp Off #PNO Fast	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq 1 91150000 AvgiHold 300/300 Radio Std; None	00 GHz	Center Frequency 1.911500000 GHz	Settings
Graph cale/Div 10.0 dB	THE Huspite	Ref LvI Offset 28 Ref Value 30.00				Span 4.0000 MHz	
00 00						CF Step 400.000 kHz Auto Man	
						Freq Offset 0 Hz	
0.0	~~~~~				RMS AVB		
enter 1.911500 GHz es BW 39.000 kHz		Video BW 390.0	0 kHz*	Sweep 3.20 n	Span 4 MHz ns (1001 pts)		
Metrics Y							
Total Channel Power Total Power Spectral Densit	-34.21 dBm / 1. y94.21 d						Loc
501	Nov 05, 2024 1:47:08 PM	Ø			X		

NR2_5 M_Extended Band Edge_High_BPSK_FullRB



Spectrum Analyzer 1 Swept SA KEYSIGHT Input. RF RL	Input Z: 50 Ω #Atten 10 dE Corr CCorr Preamp Off Freq Ref. Int (S) NFE: Adaptive		g Type: Power (RMS 1 2 1 4 5 6 Free Run A WWWWW A A A A A A	Meas Setu Avg Hold Number 10	IP Settings
1 Spectrum T Scale/Div 10 dB	Ref Lvi Offset Ref Level 28.4	28.48 dB	Mkr1 1.850 000 GHz -20.077 dBm	Avg Type Power (RMS) Auto Man	Limits Meas Standard
18.5		m		K Meas Setup Summary Table	Legacy Compat
8.48				Auto Couple	Advanced
1 52		1	QL1-13 00 dBm	Meas Preset	Global
31.5					
41.5			RMS		
61.5 WMWWWWWWWWWWWWW					Loca
enter 1.850000 GHz Res BW 30 kHz	#Video BW	100 kHz	Span 4.000 MHz #Sweep ~1.01 s (1001 pts)		LOCA
501?	Nov 05, 2024				

NR2_10 M_Band Edge_Low_BPSK_1RB



Spectrum Analyzer 1	+					ø	Meas Setu	ib . 4
RL Align Auto	Input Z 50 Ω Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten 10 dB Preamp Off	PNO Best Wide Gate Off IF Gain Low Sig Track. Off	#Avg Type: Po Trig Free Run	wer (RMS121456 AWWWWW AAAAAA	10	d Number	Settings
1 Spectrum • Scale/Div 10 dB Log	R	ef Lvi Offset 28. ef Level 28.48 d	.48 dB	Mkr1	1.849 996 GHz -27.720 dBm	Avg Typ Power Aut Ma	(RMS)	Limits Meas Standard
18.5						/ Me	as Setup mary Table	Legacy Compat
8.48					RMS	Au	to Couple	Advanced
-1 52						Me	as Preset	Global
-11.5		1			D11 -13 00 dBm			
41.5 -51.5 -61.5								
Center 1.850000 GHz #Res BW 100 kHz		#Video BW 300	kHz	#Swee	Span 4.000 MHz ep ~1.01 s (1001 pts)			Local
	Nov 05, 2024 1:49:06 PM							

NR2_10 M_Band Edge_Low_BPSK_FullRB



KEYSIGHT RL ++- M	Input RF Coupling, DC Align: Auto	Input Z 50 Q Gorr CCorr Freq Ret Int (S) NFE Adaptive	Atten 10 dB Preamp Off #PNO Fast	Trig: Free Run Gale: Off #IF Gain: Low	Center Freq. 1 848500 AvgiHold: 300/300 Radio Std. None	0000 GHz	Center Frequency 1.848500000 GHz	Settings
Graph cale/Div 10.0	, dB		Ref LvI Offset 28 Ref Value 30.00				Span 4.0000 MHz	
00 00						RMS AVG	CF Step 400.000 kHz Auto Man	
100 100 200						ſ	Freq Offset 0 Hz	
0.0 0.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~				
enter 1.84850 es BW 39.000			Video BW 390.0	0 kHz*	Sweep 3.20	Span 4 MHz ms (1001 pts)		
Metrics	۲							
Total Chann Total Power	el Power Spectral Densit	-23.65 dBm / 1.0 ty -83.65 d						Lo
5	2	Nov 05, 2024 1:49:15 PM	\odot					

NR2_10 M_Extended Band Edge_Low_BPSK_FullRB



EYSIGHT Input RF Coupling DC Align Auto	Input Z 50 Ω #Atten 10 dB Corr Corr Preamp Off Freq Ref. Int (S) NFE Adaptive	PNO Best Wide #Avg Type: Power Gate: Off Trig: Free Run IF Gain: Low Skg Track: Off	(RMS123450 AWWWWW AAAAAA	Avg Hold Number 10	Settings
Spectrum v cale/Div 10 dB	Ref Lvi Offset 28 Ref Level 28.48 o	.48 dB Mkr1 1.	910 000 GHz -23.483 dBm	Avg Type Power (RMS) Auto Man	Limits Meas Standard
8.5	~			K Meas Setup	Legacy Compat
48				Auto Couple	Advance
52 1.5 1.5			Dit-13 00 dBm.	Meas Preset	Global
1.5					
1.5		The delivery week	BMS		
enter 1.910000 GHz Res BW 30 kHz	#Video BW 100		Span 4.000 MHz ~1.01 s (1001 pts)		Loc

NR2_10 M_Band Edge_High_BPSK_1RB



Spectrum Analyzer 1 Swept SA	+					Ċ,	Meas Setu	1P
KEYSIGHT Input RF RL ++- Align Auto	Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten 10 dB Preamp Off	PNO Best Wide Gate Off IF Gain Low Sig Track. Off	#Avg Type: Power Trig: Free Run	(RMS 1 2 1 4 5 6 A WW WW W A A A A A A A	10	d Number	Settings
1 Spectrum • Scale/Div 10 dB Log		Ref Lvi Offset 28 Ref Level 28.48 c			911 496 GHz -36.661 dBm	Avg Typ Power Aut Ma	(RMS)	Limits Meas Standard
18.5						/ Me	as Setup mary Table	Legacy Compat
8.48						Au	to Couple	Advanced
-1 52					DL1-13 00 dBin	Me	as Preset	Global
31:5	1				1			
41.5					RMS			
61.5								Local
Center 1.910000 GHz #Res BW 100 kHz		#Video BW 300	kHz	#Sweep -	Span 4.000 MHz 1.01 s (1001 pts)			Local
- 5 6	? Nov 05, 2024 1:54:13 PM	9						

NR2_10 M_Band Edge_High_BPSK_FullRB



KEYSIGHT	Input_RF Coupling_DC Align_Auto	Input Z 50 Q Corr CCorr Freq Ret Int (S) NFE Adaptive	Atten 10 dB Preamp Off #PNO Fast	Trig: Free Run Gale: Off #IF Gain: Low	Center Freq 1 9115000 Avg/Hold 300/300 Radio Std. Nona	00 GH2	Center Frequency 1.911500000 GHz	Settings
Graph cale/Div 10.0	+	THE Happing	Ref LvI Offset 28 Ref Value 30.00				Span 4.0000 MHz	
óg 0.0			Ref Value 50,00				CF Step 400.000 kHz Auto Man	
1.00. 10 0 20 0							Freq Offset 0 Hz	
30.0 40.0 50.0						RMS AVG		
enter 1.91150 es BW 39.000			Video BW 390.0	0 kHz*	Sweep 3.20 r	Span 4 MHz ms (1001 pts)		
Metrics								
Total Channe Total Power	el Power Spectral Densit	-28.77 dBm / 1.0						Loc
5	2	Nov 05, 2024 1:54:23 PM	9			X		

NR2_10 M_Extended Band Edge_High_BPSK_FullRB



EYSIGHT Input RF Coupling DC Align Auto	Input Z 50 Ω Corr CCorr Freq Ref. Int (S) NFE: Adaptive	Preamp Off C	NO Best Wide Sate: Off F Gain: Low lig Track, Off	#Avg Type: Po Trig: Free Run	wer (RMS 1 2 3 4 5 6 AWWWWW A A A A A A A	Meas Se Avg Hold Number 10	Settings
7 Spectrum • cale/Div 10 dB og	R	ef Lvi Offset 28.48 (ef Level 28.48 dBm	18	Mkr1	1.850 000 GHz -23.012 dBm	Avg Type Power (RMS) Auto Man	Limits Meas Standard
8.5			m			K Meas Setup Summary Table	Legacy Compat
.48						Auto Couple	Advanced
52 11 5 		1			D11-13 00 dBm	Meas Preset	Global
11.5 11.5					the shirt		
11.5 A. Colored Market Market		#Video BW 100 kHz	2	#Swe	Span 4.000 MHz ep ~1.01 s (1001 pts)		Loca

NR2_15 M_Band Edge_Low_BPSK_1RB



L + Align Auto Fr	put Z: 50 Ω #Atten: 10 dB orr CCorr Preamp: Off eq Ref. Int (S) FE: Adaptive	PNO Best Wide Gate: Off IF Gain: Low Ski Track: Off	#Avg Type: Power (RMS 1 2 1 4 Trig: Free Run	10	Settings
Spectrum cale/Div 10 dB og	Ref Lvi Offset 28 Ref Level 28.48 c	.48 dB	Mkr1 1.849 988 0 -29.938 d	I ONCI (INNO)	Limits Meas Standard
8.5				Meas Setup Summary Table	Legacy Compat
3.48				Auto Couple	Advance
1.52				Meas Preset	Global
11.5	1				
15					
n.5					Loc
enter 1.850000 GHz Res BW 150 kHz	#Video BW 470) kHz	Span 4.000 #Sweep ~1.01 s (1001		

NR2_15 M_Band Edge_Low_BPSK_FullRB



Spectrum Ana Channel Powe	er	+			and the state of the		Q	Frequenc	v • 5
KEYSIGH RL ++-	T Input RF Coupling DC Align Auto	Input Z 50 Q Corr CCorr Freq Ret Int (S) NFE Adaptive	Atten 10 dB Preamp Off #PNO Fast	Trig Free Run Gale Off #IF Gain Low	Center Freq. 1 8485000 Avg[Hold: 300/300 Radio Std. None	00 GHz		requency 00000 GHz	Settings
Graph cale/Div 10.	• 0 dB	THE Mulpine	Ref LvI Offset 28 Ref Value 30.00				Span 4.0000		
.og							CF Step 400.000		
10.0						RMSAVG	Auto	D	
10.0						F	Freq Off 0 Hz	set	1
20.0						1	0 H2		
40.0	_	~~	h						
50.0 60.0									
enter 1.848 tes BW 39.0			Video BW 390.0	0 kHz*	Sweep 3.20 n	Span 4 MHz ns (1001 pts)			
2 Metrics	-								
Total Chan		-29,84 dBm / 1,	00.0467						
	er Spectral Densit								Loca
5	3	Nov 05, 2024 1:57:25 PM	\bigcirc						

NR2_15 M_Extended Band Edge_Low_BPSK_FullRB



EYSIGHT Input RF Coupling DC Align Auto		Preamp Off 0	PNO Best Wide #Avg Type Sate Off Trig Free I F Gain Low Sig Track Off	Power (RMS 1 2 3 4 5 6 Run AWWWWW A A A A A A	Avg Hold Number 10	Settings
Spectrum • cale/Div 10 dB	Re	ef Lvi Offset 28.48 (ef Level 28.48 dBm	dB Mk	r1 1.910 000 GHz -25.299 dBm	Avg Type Power (RMS) Auto Man	Limits Meas Standard
8.5		1			K Meas Setup Summary Table	Legacy Compat
3.48					Auto Couple	Advance
1 52				DL1-13 00 dBm	Meas Preset	Global
11.5				RMS		
enter 1.910000 GHz Res BW 30 kHz		#Video BW 100 kHa		Span 4.000 MHz sweep ~1.01 s (1001 pts)		Loc

NR2_15 M_Band Edge_High_BPSK_1RB



Spectrum Analyzer 1 Swept SA	+		A. State			Meas Set	tup + 👬
RL Align Auto	Input Z 50 Ω Corr CCorr Freq Ref. Int (S) NFE. Adaptive	#Atten 10 dB Preamp Off	PNO Best Wide Gate Off IF Gain Low Sig Track Off	#Avg Type: Power (RMS Trig: Free Run	S123456 AWWWWW AAAAAAA	Avg Hold Number 10	Settings
1 Spectrum Scale/Div 10 dB Log		Ref LvI Offset 28 Ref Level 28.48 c	.48 dB	Mkr1 1.910 -38		Avg Type Power (RMS) Auto Man	Limits Meas Standard
18.5						K Meas Setup Summary Table	Legacy Compat
8.48						Auto Couple	Advanced
-1 52	$\mathbf{\Lambda}$.011-13 00 dBm	Meas Preset	Global
21.5	1						
-31:5			1		RMS		
51.5							
-61.5							Local
Center 1.910000 GHz #Res BW 150 kHz		#Video BW 470	kHz	Sp #Sweep ~1.0	an 4.000 MHz 1 s (1001 pts)		Local
501	? Nov 05, 2024 2:02:20 PM	Ø			X		

NR2_15 M_Band Edge_High_BPSK_FullRB



KEYSIGH	Companying 1 w7	Input Z 50 Q Corr CCorr Freq Ret Int (S) NFE Adaptive	Atten 10 dB Preamp Off #PNO Fast	Trig Free Run Gale Off #IF Gain Low	Center Freq 1 9115000 AvgiHold 300/300 Radio Std: None	10 GHz	Center Frequency 1.911500000 GHz	Settings
Graph	*		Ref LvI Offset 28				Span 4.0000 MHz	
cale/Div 10	.0 dB		Ref Value 30.00				CF Step 400.000 kHz Auto Man	
100 100 200							Freq Offset 0 Hz	
40.0						RMS AVG		
enter 1.911 es BW 39.0			Video BW 390.0	0 kHz*	Sweep 3.20 n	Span 4 MHz ns (1001 pts)		
Metrics	T							
	nnel Power er Spectral Densi	-33,03 dBm / 1,1 ity -93.03 d						Loc
5	2	? Nov 05, 2024 2:02:30 PM	\odot			X		

NR2_15 M_Extended Band Edge_High_BPSK_FullRB



KEYSIGHT Input RF Coupling DC Align Auto	hiput Z: 50 Ω Corr CCorr Freq Ref. Int (S)	#Atten 10 dB Preamp Off	PNO: Best Wide Gate: Off IF Gain: Low	#Avg Type: Po Trig: Free Run	AWWWWW	Avg Hole 10	Meas Setu d Number	settings
1 Spectrum		ef Lvi Offset 28.4 ef Level 28.48 di		Mkr1	AAAAAA 1.850 000 GHz -26.914 dBm	Avg Typ Power Aut Ma	(RMS)	Limits Meas Standard
18.5			-				as Setup mary Table	Legacy Compat
8.48						Au	to Couple	Advanced
1 52						Me	as Preset	Global
11.5 21.5 31.5 41.5 51.5	norman last statement				This is a second			
1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5		#Video BW 100	kHz	#Swe	Span 4.000 MHz ep ~1.01 s (1001 pts)			Loca
5001?	Nov 05, 2024 2:04:58 PM							

NR2_20 M_Band Edge_Low_BPSK_1RB



L + Coupling DG Co Align Auto Fr	putZ:50 Ω #Atten 10 dB orr CCorr Preamp Off eq.Ref.Int (S) E. Adaptive	PNO Best Wide Gate Off IF Gain Low Sig Track. Off	#Avg Type: Power (RMS 1 2 1 4 5 Trig: Free Run A WW WW A A A A A	10	Settings
Spectrum • cale/Div 10 dB	Ref Lvi Offset 28 Ref Level 28.48 (.48 dB	Mkr1 1.849 996 GF -33.185 dB	Avg Type Power (RMS)	Limits Meas Standard
18.5				Meas Setup Summary Table	Legacy Compat
3 48			RI	Auto Couple	Advanced
1 52			D1.1-13.00 di	Meas Preset	Global
31:5	1				
11.5 51.5					
61 S					Loca
enter 1.850000 GHz Res BW 200 kHz	#Video BW 620) kHz	Span 4.000 M #Sweep ~1.01 s (1001 p		

NR2_20 M_Band Edge_Low_BPSK_FullRB



	iput_RF Jouping_DG Jign_Auto	Input Z: 50 Q Gorr CCorr Freq Ret: Int (S) NFE: Adaptive	Atten 10 dB Preamp Off #PNO Fast	Trig Free Run Gale Off #IF Gain Low	Center Freq. 1 8485000 Avg/Hold: 300/300 Radio Std: None	00 GHz	Center Frequency 1.848500000 GHz	settings
Graph cale/Div 10.0 d	•	The Transform	Ref LvI Offset 28 Ref Value 30.00				Span 4.0000 MHz	
.0g							CF Step 400.000 kHz	
10 0 0 00						-RMS AVG	Auto Man	
							Freq Offset 0 Hz	
20 0 30 0						at		
40.0								
Center 1.848500 Res BW 39.000			Video BW 390.0	0 kHz*	Sweep 3.20 r	Span 4 MHz ns (1001 pts)		
2 Metrics	*							
Total Channel	Power	-30.96 dBm / 1.0	00 MHz					
Total Power S	pectral Densit	y -90.96 d	iBm/Hz					Loca
150		Nov 05, 2024 2:04:36 PM	9			X		

NR2_20 M_Extended Band Edge_Low_BPSK_FullRB



Spectrum Analyzer 1 Swept SA KEYSIGHT Input. RF Coupling DG- Align Auto	H Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) NFE Adaptive	#Atten 10 dB Preamp Off	PNO Best Wide Gate Off IF Gain Low Sig Track Off	#Avg Type: Power (RM Trig: Free Run	S <mark>123456</mark> Awwwww AAAAAA	Avg Hold Nu 10	Meas Setur	p Settings
1 Spectrum • Scale/Div 10 dB		Ref LvI Offset 28.4 Ref Level 28.48 dl	48 dB	Mkr1 1.910 -28		Avg Type Power (RM Auto Man	S) 🕴	Limits Meas Standard
18.5	~					K Meas S		Legacy Compat
8 48						Auto C	ouple	Advanced
1 52					_D11-13 00 dBm	Meas F	reset	Global
31.5			V					
51.5			~ \	hand have been a second	RMS			
enter 1.910000 GHz Res BW 30 kHz		#Video BW 100	kHz		an 4.000 MHz 1 s (1001 pts)			Loca
50	? Nov 05, 2024 2:10:06 PM	9			X			

NR2_20 M_Band Edge_High_BPSK_1RB



	input RF Coupling DC Align Auto	Input Z: 50 Q Corr CCorr Freq Ref. Int (S NFE: Adaptive	#Atten 10 dB Preamp Off)	PNO Best Wide Gate Off IF Gain: Low Sig Track. Off	#Avg Type: Po Trig: Free Run	wer (RMS121456 AWWWWW A A A A A A A	10	d Number	Settings
Spectrum cale/Div 10 dE	•		Ref Lvi Offset 28. Ref Level 28.48 d		Mkr1	1.910 016 GHz -37.897 dBm	Avg Type Power (Auto Mar	RMS)	Limits Meas Standard
18.5								as Setup mary Table	Legacy Compat
3.48							Aut	o Couple	Advanced
1 52	$\left\{ \right\}$					D1.1-13 00 dBm	Me	as Preset	Global
11.5		<u></u>	1			RMS			
enter 1.91000 Res BW 200 k			#Video BW 620	kHz	#Swe	Span 4.000 MHz ep ~1.01 s (1001 pts)			Loc

NR2_20 M_Band Edge_High_BPSK_FullRB



KEYSIGHT RL +++	Input RF Couping DG Align Auto	Input Z 50 D Corr CCorr Freq Ref Int (S) NFE Adaptive	Atten 10 dB Preamp Off #PNO Fast	Trig: Free Run Gale: Off #IF Gain: Low	Center Freq 1 91150000 AvgiHold 300/300 Radio Std None	10 GHz	Center Frequency 1.911500000 GHz	Settings
1 Graph Scale/Div 10.0 dB		Ref LVI Offset 28.48 dB				Span 4.0000 MHz		
-óg 20.0 10.0			Ref Value 30.00				CF Step 400.000 kHz Auto Man	
0 00. 10 0 20 0 30 0							Freq Olfset 0 Hz	
40.0 50.0						RMS AVG		
Center 1.9115 Res BW 39.00			Video BW 390.0	0 kHz*	Sweep 3.20 m	Span 4 MHz ns (1001 pts)		
Metrics	۳							
Total Chan Total Powe	nel Power r Spectral Densi	-33.26 dBm / 1.0 ty -93.26 d						Los
5	2	Nov 05, 2024 2:09:43 PM	9			X		

NR2_20 M_Extended Band Edge_High_BPSK_FullRB



10. ANNEX A_ TEST SETUP PHOTO

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

No.	Description				
1	HCT-RF-2411-FC014-P				