

FCC CFR47 PART 22H,27 CERTIFICATION TEST REPORT FCC ID:2AOKUHYPER7PRO

Product: Smartphone

Trade Mark: HOTWAV

Model Number: Hyper 7 Pro

Family Model: Hyper 7S, Hyper 7E, Hyper 7, Hyper 7 Plus,
Hyper 7 Pro+, Hyper 7 Ultra, Hyper 8S, Hyper
8E, Hyper 8, Hyper 8 Plus, Hyper 8 Pro+, Hyper
8 Ultra

Report No.: S24042202607007

Issue Date: Jun 12, 2024

Prepared for

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TEST RESULT CERTIFICATION

Applicant's name: SHENZHEN TUGAO INTELLIGENT CO.,LTD
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 Bao'an District, Shenzhen, China
Manufacturer's Name: SHENZHEN TUGAO INTELLIGENT CO.,LTD
Address: 8th Floor, Bldg A, Jinggang Science&Technology Park, Fuyong,
 Bao'an District, Shenzhen, China
Product name: Smartphone
Trade Mark: HOTWAV
Model and/or type reference : Hyper 7 Pro
Family Model: Hyper 7S, Hyper 7E, Hyper 7, Hyper 7 Plus, Hyper 7 Pro+,
 Hyper 7 Ultra, Hyper 8S, Hyper 8E, Hyper 8, Hyper 8 Plus,
 Hyper 8 Pro+, Hyper 8 Ultra
Test Sample number.....: S240422026007
Date of Test.....: May 13, 2024 ~ Jun 12, 2024
Standards: FCC CFR 47 Part 22H,Part 27
Test procedure..... ANSI C63.26:2015
 ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Equipment	Smartphone
Trade Mark	HOTWAV
Model Name	Hyper 7 Pro
Family Model	Hyper 7S, Hyper 7E, Hyper 7, Hyper 7 Plus, Hyper 7 Pro+, Hyper 7 Ultra, Hyper 8S, Hyper 8E, Hyper 8, Hyper 8 Plus, Hyper 8 Pro+, Hyper 8 Ultra
Model Difference	All the model are the same circuit and RF module, except the model names.
FCC ID:	2AOKUHYPER7PRO
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 5 ☒ NR FDD Band 5,7, ☒ NR TDD 41, 78 ☒ EN-DC: DC_5A_n78A
Frequency Range:	LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; NR FDD Band 5 Uplink824 MHz - 849 MHz Downlink: 869MHz-894MHz NR FDD Band 7 Uplink: 2500 MHz - 2570 MHz Downlink:2620MHz-2690MHz NR TDD Band 41 Uplink/Downlink: 2496 MHz - 2690 MHz NR TDD Band 78 Uplink/Downlink: 3450 MHz - 3550 MHz
Type of Modulation:	DFT-s-OFDM:PI/2 BPSK/QPSK/16-QAM/64QAM/256QAM CP-OFDM: QPSK/16-QAM/64QAM/256QAM
Subcarrier spacing	☒ 15KHz, ☒ 30KHz, ☐ 60KHz
NR architecture	☒ SA , ☒ NSA
Antenna:	LDS Antenna
Antenna gain:	Band5: -0.65 dBi; Band7: 2.57 dBi; Band41:3.79 dBi; Band78: 0.61 dBi
Adapter	Model: HJ-C6-33-US Input:100-240V~50/60Hz 0.8A Output:(PD) 5.0V--- 3.0A 15.0W or 9.0V---3.0A 27.0W or 12.0V---2.5A 30.0W or 15.0V--- 2.0A 30.0W or 20.0V---1.5A 30.0W (PPS)3.3V-11.0V---3.0A(33.0W MAX)

Battery	DC 3.87V, 10800mAh, 41.796Wh
Power supply	DC 3.87V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V) (Note 1)
HW Version	N/A
SW Version	N/A
** Note1: The High Voltage 4.45V and Low Voltage 3.29V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AOKUHYPER7PRO** filing to comply with the FCC Part 22H ,Part 27.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 27, ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1&5/F, Building C, 1&2/F, Building E, Fenda Science Park,

Sanwei Community, Hangcheng Street, Baoan District, Shenzhen ,Guangdong, China

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI

C63.26:2015& ANSI C63.4: 2014.

FCC Registration No.:463705

IC Registration No.:9270A

CNAS Registration No.:L5516

1.5 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.5dB

1.6 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.7 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has NR Bands of: Band 5/7/41/78.

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

1.8 SUMMARY OF TEST RESULTS

FCC Part 22H Part27, Subpart L, KDB 971168 D01 Power Meas License Digital Systems v03			
FCC Rule	Test Item	Verdict	Remark
2.1046	Conducted Output Power	PASS	
27.50(d)(5) 22.913 KDB 971168 D01 Clause 5.7	Peak-to-Average Ratio	PASS	
2.1049,22.917 KDB 971168 D01 Clause 4.2	Occupied Bandwidth	PASS	
2.1051,22.917 27.53(c), (g), (h) KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913,27.50(b)(10), (c)(10) KDB 971168 D01 Clause 5.6	Effective Radiated Power	PASS	
27.50(h)(2), (d)(4) KDB 971168 D01 Clause 5.6	Equivalent Isotropic Radiated Power	PASS	
2.1053 22.917 27.53(c)(g)(h)(m) KDB 971168 D01 Clause 7	Field Strength of Spurious Radiation	PASS	
2.1055,22.355 27.54 KDB 971168 D01 Clause 9	Frequency Stability for Temperature & Voltage	PASS	
2.1051,22.917 27.53(c)(g)(h)(m) KDB 971168 D01 Clause 6	Conducted Emission	PASS	
Remark: 1. "N/A" denotes test is not applicable in this Test Report. 2. All test items were verified and recorded according to the standards and without any deviation during the test. 3. No modifications are made to the EUT during all test items.			

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smartphone	Hyper 7 Pro	FCC ID: 2AOKUHYPER7PRO	EUT

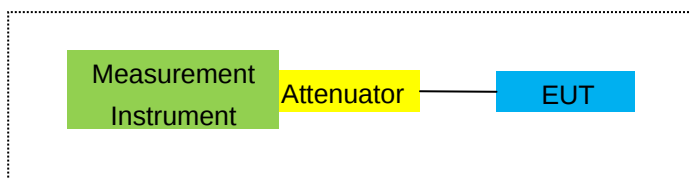
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

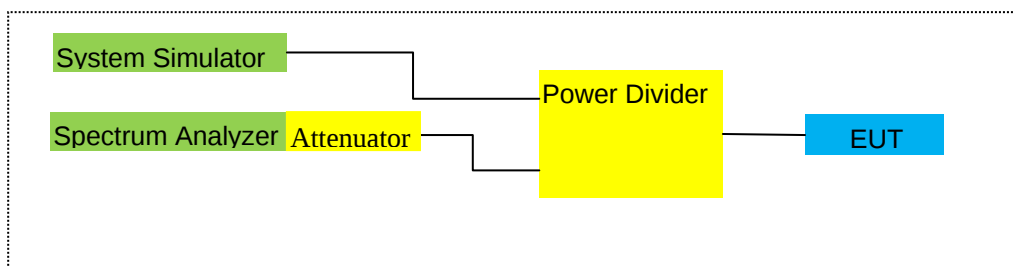
For Radiated Test Cases



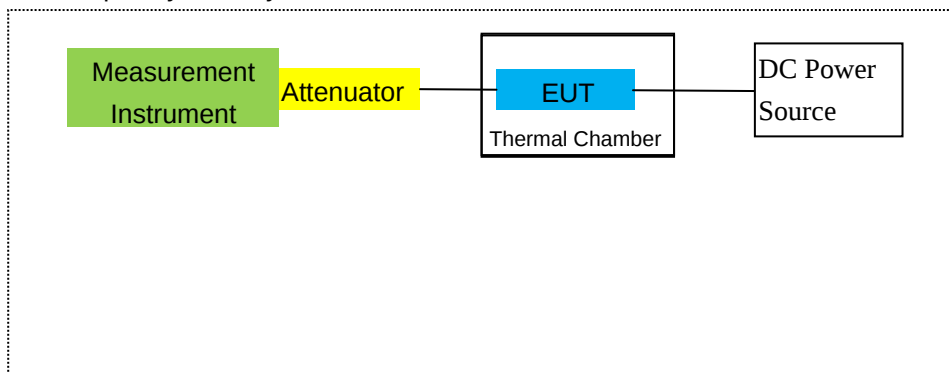
For Conducted Output Power



For Peak-to Average Ratio, Occupied Bandwidth, Conducted Band edge and Conducted Spurious Emission



For Frequency Stability



Note: EUT built-in battery-powered, the battery is fully-charged.

3.TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2024.04.26	2025.04.25	1 year
2	Test Receiver	R&S	ESPI	101318	2024.03.12	2025.03.11	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.03.11	2025.03.10	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2024.03.12	2025.03.11	1 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.03.12	2025.03.11	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.03.12	2025.03.11	1 year
15	LISN	R&S	ENV216	101313	2024.03.12	2025.03.11	1 year
16	LISN	EMCO	3816/2	00042990	2024.03.12	2025.03.11	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2024.03.12	2025.03.11	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Attenuator	MCE	24-10-34	BN9258	2024.03.12	2025.03.11	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
24	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
25	Communication Tester	R&S	CMU200	A0304247	2023.05.06	2026.05.05	3 year
26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year

27	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2024.04.25	2025.04.24	1 year
29	Communication Tester	R&S	CMW500	148500	2024.04.26	2025.04.25	1 year
30	Radio Communication Analyzer	Anritsu	MT8821C	SN 6262186364	2023.11.03	2024.11.02	1 year
31	Radio Communication Test Station	Anritsu	MT8000A	SN 6262192315	2023.11.03	2024.11.02	1 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

NR Measurement Procedure:

All NR bands conducted power peak and average are obtained from the MT8821C telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS 38.521-1 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table Table 6.2.2.3-1: of the 3GPP TS 38.521-1 (V15.3.0) (07-2019).

Table 6.2.2.3-1: UE Power Class

EUTRA band	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 4 (dBm)	Tolerance (dB)
1					23	±2		
2					23	±2 ²		
3					23	±2 ²		
4					23	±2		
5					23	±2		
6					23	±2		
7					23	±2		
8					23	±2		
9					23	±2		
10					23	±2		
11					23	±2		
12					23	±2		
13					23	±2		
14					23	±2		
15					23	±2		
16					23	±2		
17					23	±2		
18					23	±2		
19					23	±2		
20					23	±2		
21					23	±2		
22					23	±2		
23					23	±2		
24					23	±2		
25					23	±2		
26			26	±2	23	±2		
27					23	±2		
28					23	±2		
29					23	±2		
30					23	±2		
31					23	±2		
32					23	±2		
33					23	±2		
34					23	±2		
35					23	±2		
36					23	±2		
37					23	±2		
38					23	±2		
39					23	±2		
40					23	±2		
41					23	±2 ²		
42					23	+2/-3		
43					23	+2/-3		
44					23	+2/[-3]		
45					23	±2		
46					23	±2		
47			26	±2	23	±2		

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS 38.521-1 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".3

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED



NR Band 5/7/41/78

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.917(a), §27.53(c)(g)(h)(m)

FCC: §2.1046,

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is $65 + 10\log_{10}(P) = -35\text{dBm}$ in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

Set a marker to point the corresponding band edge frequency in each test case.

Set display line

Set resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

□

NR Band 5/7/41/78

RESULTS

Test data reference attachment.

Note: Both DFT-s-OFDM:PI/2 BPSK/QPSK/16-QAM/64QAM/256QAM

CP-OFDM: QPSK/16-QAM/64QAM/256QAM has been tested, the worst case is CP_QPSK mode, the report just reported the worst case.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.917(a), §27.53(c)(g)(h)(m)

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is $65 + 10\log_{10}(P) = -35\text{dBm}$ in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- ☐ Set display line
- ☐ Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

- ☐ NR Band 5/7/41/78

MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Test data reference attachment.

Note: Both DFT-s-OFDM:PI/2 BPSK/QPSK/16-QAM/64QAM/256QAM

CP-OFDM: QPSK/16-QAM/64QAM/256QAM has been tested, the worst case is CP_QPSK mode, the report just reported the worst case.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913(a)(2), §27.50 (h)(2), (b)(10), (c)(10), (d)(4)

LIMITS:

22.913(a) (2)- The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.

27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

27.50 (h)(2) Mobile and other user stations in the 2500–2570 MHz and 2620–2690 MHz bands. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

KDB 971168 D01 Power Meas License Digital Systems v02r01, "Measurement Guidance for Certification of Licensed Digital Transmitters"

MODES TESTED

☐

NR Band 5/7/41/78

RESULTS

Pass

8.2 NR BAND 5

Radiated Power (ERP) for Band 5 /SCS (30kHz)										
Mode	RB/ RB Position	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10MHz DFT_QPSK	1@1	829	6.71	2.01	19.68	2.15	22.23	167.109	Horizontal	Pass
		836.5	6.63	2.01	19.77	2.15	22.24	167.494	Horizontal	Pass
		844	6.56	2.02	19.82	2.15	22.21	166.341	Horizontal	Pass
10MHz DFT_QAM16	1@1	829	6.02	2.01	19.7	2.15	21.56	143.219	Horizontal	Pass
		836.5	5.81	2.01	19.77	2.15	21.42	138.676	Horizontal	Pass
		844	5.81	2.02	19.81	2.15	21.45	139.637	Horizontal	Pass
15MHz DFT_QPSK	1@1	831.5	6.67	2.01	19.71	2.15	22.22	166.725	Horizontal	Pass
		836.5	6.61	2.01	19.77	2.15	22.22	166.725	Horizontal	Pass
		841.5	6.62	2.02	19.79	2.15	22.24	167.494	Horizontal	Pass
15MHz DFT_QAM16	1@1	831.5	5.98	2.01	19.73	2.15	21.55	142.889	Horizontal	Pass
		836.5	5.91	2.01	19.77	2.15	21.52	141.906	Horizontal	Pass
		841.5	5.80	2.02	19.78	2.15	21.41	138.357	Horizontal	Pass
20MHz DFT_QPSK	1@1	834	6.63	2.01	19.68	2.15	22.15	164.059	Horizontal	Pass
		836.5	6.58	2.01	19.77	2.15	22.19	165.577	Horizontal	Pass
		839	6.60	2.02	19.82	2.15	22.25	167.880	Horizontal	Pass
20MHz DFT_QAM16	1@1	834	5.95	2.01	19.7	2.15	21.49	140.929	Horizontal	Pass
		836.5	5.96	2.01	19.77	2.15	21.57	143.549	Horizontal	Pass
		839	6.00	2.02	19.81	2.15	21.64	145.881	Horizontal	Pass

Radiated Power (ERP) for Band 5 SCS (30kHz)										
Mode	RB/ RB Position	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10MHz DFT_QPSK	1@1	829	5.83	2.01	19.71	2.15	21.38	137.404	Vertical	Pass
		836.5	5.97	2.01	19.77	2.15	21.58	143.880	Vertical	Pass
		844	5.56	2.02	19.79	2.15	21.18	131.220	Vertical	Pass
10MHz DFT_QAM16	1@1	829	5.41	2.01	19.73	2.15	20.98	125.314	Vertical	Pass
		836.5	5.27	2.01	19.77	2.15	20.88	122.462	Vertical	Pass
		844	5.17	2.02	19.78	2.15	20.78	119.674	Vertical	Pass
15MHz DFT_QPSK	1@1	831.5	6.01	2.01	19.73	2.15	21.58	143.880	Vertical	Pass
		836.5	5.97	2.01	19.77	2.15	21.58	143.880	Vertical	Pass
		841.5	5.67	2.02	19.78	2.15	21.28	134.276	Vertical	Pass
15MHz DFT_QAM16	1@1	831.5	5.31	2.01	19.73	2.15	20.88	122.462	Vertical	Pass
		836.5	5.17	2.01	19.77	2.15	20.78	119.674	Vertical	Pass
		841.5	5.37	2.02	19.78	2.15	20.98	125.314	Vertical	Pass
20MHz DFT_QPSK	1@1	834	6.71	2.01	19.73	2.15	22.28	169.044	Vertical	Pass
		836.5	6.07	2.01	19.77	2.15	21.68	147.231	Vertical	Pass
		839	5.57	2.02	19.78	2.15	21.18	131.220	Vertical	Pass
20MHz DFT_QAM16	1@1	834	5.41	2.01	19.73	2.15	20.98	125.314	Vertical	Pass
		836.5	5.47	2.01	19.77	2.15	21.08	128.233	Vertical	Pass
		839	5.17	2.02	19.78	2.15	20.78	119.674	Vertical	Pass

8.3 NR BAND 7

Radiated Power (EIRP) for Band 7 /SCS (30kHz)										
Mode	RB/ RB Position	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10MHz DFT_QPSK	1@1	2505	6.71	2.01	19.68	2.15	22.23	167.109	Horizontal	Pass
		2535	6.63	2.01	19.77	2.15	22.24	167.494	Horizontal	Pass
		2565	6.56	2.02	19.82	2.15	22.21	166.341	Horizontal	Pass
10MHz DFT_QAM16	1@1	2505	6.02	2.01	19.7	2.15	21.56	143.219	Horizontal	Pass
		2535	5.81	2.01	19.77	2.15	21.42	138.676	Horizontal	Pass
		2565	5.81	2.02	19.81	2.15	21.45	139.637	Horizontal	Pass
15MHz DFT_QPSK	1@1	2507.5	6.67	2.01	19.71	2.15	22.22	166.725	Horizontal	Pass
		2535	6.61	2.01	19.77	2.15	22.22	166.725	Horizontal	Pass
		2562.5	6.62	2.02	19.79	2.15	22.24	167.494	Horizontal	Pass
15MHz DFT_QAM16	1@1	2507.5	5.98	2.01	19.73	2.15	21.55	142.889	Horizontal	Pass
		2535	5.91	2.01	19.77	2.15	21.52	141.906	Horizontal	Pass
		2562.5	5.80	2.02	19.78	2.15	21.41	138.357	Horizontal	Pass
20MHz DFT_QPSK	1@1	2510	6.63	2.01	19.68	2.15	22.15	164.059	Horizontal	Pass
		2535	6.58	2.01	19.77	2.15	22.19	165.577	Horizontal	Pass
		2560	6.60	2.02	19.82	2.15	22.25	167.880	Horizontal	Pass
20MHz DFT_QAM16	1@1	2510	5.95	2.01	19.7	2.15	21.49	140.929	Horizontal	Pass
		2535	5.96	2.01	19.77	2.15	21.57	143.549	Horizontal	Pass
		2560	6.00	2.02	19.81	2.15	21.64	145.881	Horizontal	Pass

Radiated Power (EIRP) for Band 7 SCS (30kHz)										
Mode	RB/ RB Position	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10MHz DFT_QPSK	1@1	2505	5.53	2.01	19.71	2.15	21.08	128.233	Vertical	Pass
		2535	5.27	2.01	19.77	2.15	20.88	122.462	Vertical	Pass
		2565	5.96	2.02	19.79	2.15	21.58	143.880	Vertical	Pass
10MHz DFT_QAM16	1@1	2505	5.21	2.01	19.73	2.15	20.78	119.674	Vertical	Pass
		2535	5.77	2.01	19.77	2.15	21.38	137.404	Vertical	Pass
		2565	5.57	2.02	19.78	2.15	21.18	131.220	Vertical	Pass
15MHz DFT_QPSK	1@1	2507.5	5.11	2.01	19.73	2.15	20.68	116.950	Vertical	Pass
		2535	5.67	2.01	19.77	2.15	21.28	134.276	Vertical	Pass
		2562.5	5.17	2.02	19.78	2.15	20.78	119.674	Vertical	Pass
15MHz DFT_QAM16	1@1	2507.5	5.51	2.01	19.73	2.15	21.08	128.233	Vertical	Pass
		2535	5.17	2.01	19.77	2.15	20.78	119.674	Vertical	Pass
		2562.5	5.27	2.02	19.78	2.15	20.88	122.462	Vertical	Pass
20MHz DFT_QPSK	1@1	2510	5.61	2.01	19.73	2.15	21.18	131.220	Vertical	Pass
		2535	6.47	2.01	19.77	2.15	22.08	161.436	Vertical	Pass
		2560	6.07	2.02	19.78	2.15	21.68	147.231	Vertical	Pass
20MHz DFT_QAM16	1@1	2510	5.71	2.01	19.73	2.15	21.28	134.276	Vertical	Pass
		2535	5.47	2.01	19.77	2.15	21.08	128.233	Vertical	Pass
		2560	5.07	2.02	19.78	2.15	20.68	116.950	Vertical	Pass

8.4 NR BAND 41

Radiated Power (EIRP) for N41 /SCS (30kHz)									
Mode	RB/ RB Position	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
10.0MHz DFT_QPSK	1@1	2501.01	-4.94	5.12	29.16	19.10	81.283	Horizontal	Pass
		2592.99	-3.74	5.18	28.92	20.00	100.000	Horizontal	Pass
		2685	-3.48	5.23	28.91	20.20	104.713	Horizontal	Pass
15.0MHz DFT_QPSK	1@1	2503.5	-3.45	5.12	28.97	20.40	109.648	Horizontal	Pass
		2592.99	-2.44	5.18	28.92	21.30	134.896	Horizontal	Pass
		2682.48	-3.49	5.22	28.91	20.20	104.713	Horizontal	Pass
20.0MHz DFT_QPSK	1@1	2506.02	-2.14	5.13	28.97	21.70	147.911	Horizontal	Pass
		2592.99	-3.44	5.18	28.92	20.30	107.152	Horizontal	Pass
		2679.99	-2.98	5.21	28.89	20.70	117.490	Horizontal	Pass
40.0MHz DFT_QPSK	1@1	2516.01	-2.65	5.13	28.98	21.20	131.826	Horizontal	Pass
		2592.99	-3.24	5.18	28.92	20.50	112.202	Horizontal	Pass
		2670	-3.19	5.21	28.9	20.50	112.202	Horizontal	Pass
50.0MHz DFT_QPSK	1@1	2521.02	-3.44	5.14	28.98	20.40	109.648	Horizontal	Pass
		2592.99	-4.85	5.18	28.93	18.90	77.625	Horizontal	Pass
		2664.99	-2.70	5.2	28.9	21.00	125.893	Horizontal	Pass
60.0MHz DFT_QPSK	1@1	2526	-4.35	5.14	28.99	19.50	89.125	Horizontal	Pass
		2592.99	-3.34	5.18	28.92	20.40	109.648	Horizontal	Pass
		2659.98	-2.09	5.19	28.88	21.60	144.544	Horizontal	Pass
80.0MHz DFT_QPSK	1@1	2536.02	-4.01	5.14	28.95	19.80	95.499	Horizontal	Pass
		2592.99	-2.25	5.18	28.93	21.50	141.254	Horizontal	Pass
		2649.99	-4.63	5.19	28.92	19.10	81.283	Horizontal	Pass
90.0MHz DFT_QPSK	1@1	2541	-4.12	5.14	28.96	19.70	93.325	Horizontal	Pass
		2592.99	-4.75	5.18	28.93	19.00	79.433	Horizontal	Pass
		2644.98	-2.61	5.19	28.9	21.10	128.825	Horizontal	Pass
100.0MHz DFT_QPSK	1@1	2546.01	-3.05	5.18	28.93	20.70	117.490	Horizontal	Pass
		2592.99	-2.11	5.19	28.9	21.60	144.544	Horizontal	Pass
		2640	-3.63	5.14	28.97	20.20	104.713	Horizontal	Pass
10.0MHz	1@1	2501.01	-3.84	5.12	29.16	20.20	104.713	Vertical	Pass

DFT_QPSK		2592.99	-4.14	5.18	28.92	19.60	91.201	Vertical	Pass
		2685	-3.48	5.23	28.91	20.20	104.713	Vertical	Pass
15.0MHz DFT_QPSK	1@1	2503.5	-3.35	5.12	28.97	20.50	112.202	Vertical	Pass
		2592.99	-4.34	5.18	28.92	19.40	87.096	Vertical	Pass
		2682.48	-3.39	5.22	28.91	20.30	107.152	Vertical	Pass
20.0MHz DFT_QPSK	1@1	2506.02	-3.64	5.13	28.97	20.20	104.713	Vertical	Pass
		2592.99	-2.04	5.18	28.92	21.70	147.911	Vertical	Pass
		2679.99	-3.78	5.21	28.89	19.90	97.724	Vertical	Pass
40.0MHz DFT_QPSK	1@1	2516.01	-3.25	5.13	28.98	20.60	114.815	Vertical	Pass
		2592.99	-4.44	5.18	28.92	19.30	85.114	Vertical	Pass
		2670	-3.89	5.21	28.9	19.80	95.499	Vertical	Pass
50.0MHz DFT_QPSK	1@1	2521.02	-4.54	5.14	28.98	19.30	85.114	Vertical	Pass
		2592.99	-4.65	5.18	28.93	19.10	81.283	Vertical	Pass
		2664.99	-3.20	5.2	28.9	20.50	112.202	Vertical	Pass
60.0MHz DFT_QPSK	1@1	2526	-4.25	5.14	28.99	19.60	91.201	Vertical	Pass
		2592.99	-4.34	5.18	28.92	19.40	87.096	Vertical	Pass
		2659.98	-2.19	5.19	28.88	21.50	141.254	Vertical	Pass
80.0MHz DFT_QPSK	1@1	2536.02	-5.01	5.14	28.95	18.80	75.858	Vertical	Pass
		2592.99	-4.25	5.18	28.93	19.50	89.125	Vertical	Pass
		2649.99	-3.03	5.19	28.92	20.70	117.490	Vertical	Pass
90.0MHz DFT_QPSK	1@1	2541	-4.12	5.14	28.96	19.70	93.325	Vertical	Pass
		2592.99	-4.25	5.18	28.93	19.50	89.125	Vertical	Pass
		2644.98	-4.81	5.19	28.9	18.90	77.625	Vertical	Pass
100.0MHz DFT_QPSK	1@1	2546.01	-2.75	5.18	28.93	21.00	125.893	Vertical	Pass
		2592.99	-3.81	5.19	28.9	19.90	97.724	Vertical	Pass
		2640	-4.93	5.14	28.97	18.90	77.625	Vertical	Pass

Radiated Power (EIRP) for N41 /SCS (30kHz)									
Mode	RB/ RB Position	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10.0MHz DFT_16QAM	1@1	2501.01	-6.87	5.12	29.16	19.70	93.325	Horizontal	Pass
		2592.99	-6.67	5.18	28.92	21.30	134.896	Horizontal	Pass
		2685	-6.38	5.23	28.91	18.40	69.183	Horizontal	Pass
15.0MHz DFT_16QAM	1@1	2503.5	-6.75	5.12	28.97	20.10	102.329	Horizontal	Pass
		2592.99	-6.72	5.18	28.92	21.00	125.893	Horizontal	Pass
		2682.48	-6.90	5.22	28.91	18.40	69.183	Horizontal	Pass
20.0MHz DFT_16QAM	1@1	2506.02	-7.05	5.13	28.97	19.00	79.433	Horizontal	Pass
		2592.99	-6.49	5.18	28.92	18.60	72.444	Horizontal	Pass
		2679.99	-6.44	5.21	28.89	19.80	95.499	Horizontal	Pass
40.0MHz DFT_16QAM	1@1	2516.01	-6.95	5.13	28.98	18.90	77.625	Horizontal	Pass
		2592.99	-6.48	5.18	28.92	21.30	134.896	Horizontal	Pass
		2670	-6.42	5.21	28.9	19.00	79.433	Horizontal	Pass
50.0MHz DFT_16QAM	1@1	2521.02	-6.65	5.14	28.98	20.40	109.648	Horizontal	Pass
		2592.99	-6.59	5.18	28.93	21.00	125.893	Horizontal	Pass
		2664.99	-6.97	5.2	28.9	19.50	89.125	Horizontal	Pass
60.0MHz DFT_16QAM	1@1	2526	-6.74	5.14	28.99	19.80	95.499	Horizontal	Pass
		2592.99	-6.58	5.18	28.92	19.60	91.201	Horizontal	Pass
		2659.98	-6.49	5.19	28.88	19.60	91.201	Horizontal	Pass
80.0MHz DFT_16QAM	1@1	2536.02	-6.93	5.14	28.95	19.40	87.096	Horizontal	Pass
		2592.99	-6.91	5.18	28.93	18.50	70.795	Horizontal	Pass
		2649.99	-6.73	5.19	28.92	18.60	72.444	Horizontal	Pass
90.0MHz DFT_16QAM	1@1	2541	-6.68	5.14	28.96	19.90	97.724	Horizontal	Pass
		2592.99	-6.76	5.18	28.93	19.50	89.125	Horizontal	Pass
		2644.98	-6.53	5.19	28.9	20.40	109.648	Horizontal	Pass
100.0MHz DFT_16QAM	1@1	2546.01	-6.76	5.18	28.93	21.00	125.893	Horizontal	Pass
		2592.99	-6.53	5.19	28.9	20.30	107.152	Horizontal	Pass
		2640	-4.51	5.19	28.9	19.20	83.176	Horizontal	Pass
10.0MHz DFT_16QAM	1@1	2501.01	-6.87	5.12	29.16	18.30	67.608	Vertical	Pass
		2592.99	-6.67	5.18	28.92	20.50	112.202	Vertical	Pass
		2685	-6.38	5.23	28.91	20.00	100.000	Vertical	Pass
15.0MHz	1@1	2503.5	-6.75	5.12	28.97	18.90	77.625	Vertical	Pass

DFT_16QAM		2592.99	-6.72	5.18	28.92	18.30	67.608	Vertical	Pass
		2682.48	-6.90	5.22	28.91	21.10	128.825	Vertical	Pass
20.0MHz DFT_16QAM	1@1	2506.02	-7.05	5.13	28.97	19.70	93.325	Vertical	Pass
		2592.99	-6.49	5.18	28.92	18.40	69.183	Vertical	Pass
		2679.99	-6.44	5.21	28.89	19.40	87.096	Vertical	Pass
40.0MHz DFT_16QAM	1@1	2516.01	-6.95	5.13	28.98	21.30	134.896	Vertical	Pass
		2592.99	-6.48	5.18	28.92	20.50	112.202	Vertical	Pass
		2670	-6.42	5.21	28.9	20.30	107.152	Vertical	Pass
50.0MHz DFT_16QAM	1@1	2521.02	-6.65	5.14	28.98	20.10	102.329	Vertical	Pass
		2592.99	-6.59	5.18	28.93	20.20	104.713	Vertical	Pass
		2664.99	-6.97	5.2	28.9	19.50	89.125	Vertical	Pass
60.0MHz DFT_16QAM	1@1	2526	-6.74	5.14	28.99	21.20	131.826	Vertical	Pass
		2592.99	-6.58	5.18	28.92	19.50	89.125	Vertical	Pass
		2659.98	-6.49	5.19	28.88	19.30	85.114	Vertical	Pass
80.0MHz DFT_16QAM	1@1	2536.02	-6.93	5.14	28.95	21.00	125.893	Vertical	Pass
		2592.99	-6.91	5.18	28.93	18.70	74.131	Vertical	Pass
		2649.99	-6.73	5.19	28.92	20.20	104.713	Vertical	Pass
90.0MHz DFT_16QAM	1@1	2541	-6.68	5.14	28.96	20.80	120.226	Vertical	Pass
		2592.99	-6.76	5.18	28.93	20.60	114.815	Vertical	Pass
		2644.98	-6.53	5.19	28.9	18.50	70.795	Vertical	Pass
100.0MHz DFT_16QAM	1@1	2546.01	-6.76	5.18	28.93	20.10	102.329	Vertical	Pass
		2592.99	-6.53	5.19	28.9	20.00	100.000	Vertical	Pass
		2640	-2.71	5.19	28.9	21.00	125.893	Vertical	Pass

8.5 NR BAND 78

Radiated Power (EIRP) for N78 /SCS (30kHz)									
Mode	RB/ RB Position	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10.0MHz DFT_QPSK	1@1	3455	-3.03	5.12	29.16	21.01	126.183	Horizontal	Pass
		3500	-2.93	5.18	28.92	20.81	120.504	Horizontal	Pass
		3545	-2.47	5.23	28.91	21.21	132.130	Horizontal	Pass
15.0MHz DFT_QPSK	1@1	3457.5	-1.74	5.12	28.97	22.11	162.555	Horizontal	Pass
		3500	-1.33	5.18	28.92	22.41	174.181	Horizontal	Pass
		3542.5	-1.98	5.22	28.91	21.71	148.252	Horizontal	Pass
20.0MHz DFT_QPSK	1@1	3460	-3.13	5.13	28.97	20.71	117.761	Horizontal	Pass
		3500	-2.33	5.18	28.92	21.41	138.357	Horizontal	Pass
		3540	-2.17	5.21	28.89	21.51	141.579	Horizontal	Pass
40.0MHz DFT_QPSK	1@1	3470	-2.64	5.13	28.98	21.21	132.130	Horizontal	Pass
		3500	-2.33	5.18	28.92	21.41	138.357	Horizontal	Pass
		3530	-1.68	5.21	28.9	22.01	158.855	Horizontal	Pass
50.0MHz DFT_QPSK	1@1	3475	-2.23	5.14	28.98	21.61	144.877	Horizontal	Pass
		3500	-2.04	5.18	28.93	21.71	148.252	Horizontal	Pass
		3525	-1.99	5.2	28.9	21.71	148.252	Horizontal	Pass
60.0MHz DFT_QPSK	1@1	3480	-1.94	5.14	28.99	21.91	155.239	Horizontal	Pass
		3500	-3.13	5.18	28.92	20.61	115.080	Horizontal	Pass
		3520	-2.48	5.19	28.88	21.21	132.130	Horizontal	Pass
80.0MHz DFT_QPSK	1@1	3490	-1.70	5.14	28.95	22.11	162.555	Horizontal	Pass
		3500	-2.14	5.18	28.93	21.61	144.877	Horizontal	Pass
		3510	-2.92	5.19	28.92	20.81	120.504	Horizontal	Pass
90.0MHz DFT_QPSK	1@1	3495	-3.01	5.14	28.96	20.81	120.504	Horizontal	Pass
		3500	-2.84	5.18	28.93	20.91	123.310	Horizontal	Pass
		3505	-3.10	5.19	28.9	20.61	115.080	Horizontal	Pass
100.0MHz DFT_QPSK	1@1	3500	-2.42	5.14	28.97	21.41	138.357	Horizontal	Pass
10.0MHz DFT_QPSK	1@1	3455	-3.03	5.12	29.16	21.01	126.183	Vertical	Pass
		3500	-2.03	5.18	28.92	21.71	148.252	Vertical	Pass
		3545	-1.17	5.23	28.91	22.51	178.238	Vertical	Pass
15.0MHz DFT_QPSK	1@1	3457.5	-2.94	5.12	28.97	20.91	123.310	Vertical	Pass
		3500	-2.53	5.18	28.92	21.21	132.130	Vertical	Pass

		3542.5	-3.18	5.22	28.91	20.51	112.460	Vertical	Pass
20.0MHz DFT_QPSK	1@1	3460	-2.73	5.13	28.97	21.11	129.122	Vertical	Pass
		3500	-1.33	5.18	28.92	22.41	174.181	Vertical	Pass
		3540	-2.97	5.21	28.89	20.71	117.761	Vertical	Pass
40.0MHz DFT_QPSK	1@1	3470	-2.74	5.13	28.98	21.11	129.122	Vertical	Pass
		3500	-2.53	5.18	28.92	21.21	132.130	Vertical	Pass
		3530	-2.68	5.21	28.9	21.01	126.183	Vertical	Pass
50.0MHz DFT_QPSK	1@1	3475	-3.03	5.14	28.98	20.81	120.504	Vertical	Pass
		3500	-2.34	5.18	28.93	21.41	138.357	Vertical	Pass
		3525	-1.89	5.2	28.9	21.81	151.705	Vertical	Pass
60.0MHz DFT_QPSK	1@1	3480	-2.04	5.14	28.99	21.81	151.705	Vertical	Pass
		3500	-1.63	5.18	28.92	22.11	162.555	Vertical	Pass
		3520	-2.08	5.19	28.88	21.61	144.877	Vertical	Pass
80.0MHz DFT_QPSK	1@1	3490	-2.30	5.14	28.95	21.51	141.579	Vertical	Pass
		3500	-2.54	5.18	28.93	21.21	132.130	Vertical	Pass
		3510	-1.72	5.19	28.92	22.01	158.855	Vertical	Pass
90.0MHz DFT_QPSK	1@1	3495	-2.61	5.14	28.96	21.21	132.130	Vertical	Pass
		3500	-2.44	5.18	28.93	21.31	135.207	Vertical	Pass
		3505	-1.50	5.19	28.9	22.21	166.341	Vertical	Pass
100.0MHz DFT_QPSK	1@1	3500	-3.22	5.14	28.97	20.61	115.080	Vertical	Pass

Radiated Power (EIRP) for N78 /SCS (30kHz)									
Mode	RB/ RB Position	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10.0MHz DFT_16QAM	1@1	3455	-6.87	5.12	29.16	21.21	132.130	Horizontal	Pass
		3500	-6.67	5.18	28.92	21.61	144.877	Horizontal	Pass
		3545	-6.38	5.23	28.91	21.81	151.705	Horizontal	Pass
15.0MHz DFT_16QAM	1@1	3457.5	-6.75	5.12	28.97	22.51	178.238	Horizontal	Pass
		3500	-6.72	5.18	28.92	21.11	129.122	Horizontal	Pass
		3542.5	-6.90	5.22	28.91	21.71	148.252	Horizontal	Pass
20.0MHz DFT_16QAM	1@1	3460	-7.05	5.13	28.97	22.51	178.238	Horizontal	Pass
		3500	-6.49	5.18	28.92	21.71	148.252	Horizontal	Pass
		3540	-6.44	5.21	28.89	21.71	148.252	Horizontal	Pass
40.0MHz DFT_16QAM	1@1	3470	-6.95	5.13	28.98	21.71	148.252	Horizontal	Pass
		3500	-6.48	5.18	28.92	20.71	117.761	Horizontal	Pass
		3530	-6.42	5.21	28.9	20.71	117.761	Horizontal	Pass
50.0MHz DFT_16QAM	1@1	3475	-6.65	5.14	28.98	20.91	123.310	Horizontal	Pass
		3500	-6.59	5.18	28.93	21.41	138.357	Horizontal	Pass
		3525	-6.97	5.2	28.9	21.81	151.705	Horizontal	Pass
60.0MHz DFT_16QAM	1@1	3480	-6.74	5.14	28.99	21.31	135.207	Horizontal	Pass
		3500	-6.58	5.18	28.92	21.31	135.207	Horizontal	Pass
		3520	-6.49	5.19	28.88	22.41	174.181	Horizontal	Pass
80.0MHz DFT_16QAM	1@1	3490	-6.93	5.14	28.95	22.21	166.341	Horizontal	Pass
		3500	-6.91	5.18	28.93	20.91	123.310	Horizontal	Pass
		3510	-6.73	5.19	28.92	20.51	112.460	Horizontal	Pass
90.0MHz DFT_16QAM	1@1	3495	-6.68	5.14	28.96	20.61	115.080	Horizontal	Pass
		3500	-6.76	5.18	28.93	22.31	170.216	Horizontal	Pass
		3505	-6.53	5.19	28.9	21.11	129.122	Horizontal	Pass
100.0MHz DFT_16QAM	1@1	3500	-1.70	5.19	28.9	22.01	158.855	Horizontal	Pass
10.0MHz DFT_16QAM	1@1	3455	-6.87	5.12	29.16	21.91	155.239	Vertical	Pass
		3500	-6.67	5.18	28.92	21.81	151.705	Vertical	Pass
		3545	-6.38	5.23	28.91	21.81	151.705	Vertical	Pass
15.0MHz DFT_16QAM	1@1	3457.5	-6.75	5.12	28.97	21.21	132.130	Vertical	Pass
		3500	-6.72	5.18	28.92	22.31	170.216	Vertical	Pass
		3542.5	-6.90	5.22	28.91	20.91	123.310	Vertical	Pass

20.0MHz DFT_16QAM	1@1	3460	-7.05	5.13	28.97	20.71	117.761	Vertical	Pass
		3500	-6.49	5.18	28.92	22.01	158.855	Vertical	Pass
		3540	-6.44	5.21	28.89	21.31	135.207	Vertical	Pass
40.0MHz DFT_16QAM	1@1	3470	-6.95	5.13	28.98	21.01	126.183	Vertical	Pass
		3500	-6.48	5.18	28.92	21.21	132.130	Vertical	Pass
		3530	-6.42	5.21	28.9	20.81	120.504	Vertical	Pass
50.0MHz DFT_16QAM	1@1	3475	-6.65	5.14	28.98	22.01	158.855	Vertical	Pass
		3500	-6.59	5.18	28.93	22.41	174.181	Vertical	Pass
		3525	-6.97	5.2	28.9	21.91	155.239	Vertical	Pass
60.0MHz DFT_16QAM	1@1	3480	-6.74	5.14	28.99	20.61	115.080	Vertical	Pass
		3500	-6.58	5.18	28.92	21.71	148.252	Vertical	Pass
		3520	-6.49	5.19	28.88	22.21	166.341	Vertical	Pass
80.0MHz DFT_16QAM	1@1	3490	-6.93	5.14	28.95	20.71	117.761	Vertical	Pass
		3500	-6.91	5.18	28.93	22.31	170.216	Vertical	Pass
		3510	-6.73	5.19	28.92	20.81	120.504	Vertical	Pass
90.0MHz DFT_16QAM	1@1	3495	-6.68	5.14	28.96	20.91	123.310	Vertical	Pass
		3500	-6.76	5.18	28.93	22.51	178.238	Vertical	Pass
		3505	-6.53	5.19	28.9	21.11	129.122	Vertical	Pass
100.0MHz DFT_16QAM	1@1	3500	-2.90	5.19	28.9	20.81	120.504	Vertical	Pass

8.5 NSA(BAND 5+NR BAND 78)

Band	SCS (kHz)	Bandwidth (MHz)	Frequency (MHz)	SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Correction (dB)	Power (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP
Band5	30	5	826.5	22.05	3.77	5.30	2.15	21.43	139.00	Horizontal
n78	30	20	3460	16.85	3.91	8.9	2.15	19.69	93.11	Horizontal
Sum	30							23.66	232.11	Horizontal
Band5	30	5	826.5	23.43	5.13	5.30	2.15	21.45	139.64	Horizontal
n78	30	20	3460	18.57	5.18	8.9	2.15	20.14	103.28	Horizontal
Sum	30							23.85	242.91	Horizontal
Band5	30	5	826.5	23.41	5.14	5.30	2.15	21.42	138.68	Horizontal
n78	30	20	3460	18.11	5.18	8.9	2.15	19.68	92.90	Horizontal
Sum	30							23.65	231.57	Horizontal
Band5	30	5	826.5	23.42	5.14	5.30	2.15	21.43	139.00	Horizontal
n78	30	20	3460	18.51	5.18	8.9	2.15	20.08	101.86	Horizontal
Sum	30							23.82	240.85	Horizontal
Band5	30	5	826.5	23.55	5.14	5.30	2.15	21.56	143.22	Horizontal
n78	30	20	3450	19.06	5.18	8.9	2.15	20.63	115.61	Horizontal
Sum	30							24.13	258.83	Horizontal
Band5	30	5	826.5	23.56	5.14	5.30	2.15	21.57	143.55	Horizontal
n78	30	20	3450	19.08	5.18	8.9	2.15	20.65	116.14	Horizontal
Sum	30							24.14	259.69	Horizontal
Band5	30	5	846.5	22.09	3.77	5.30	2.15	21.47	140.28	Horizontal
n78	30	20	3540	17.84	3.91	8.9	2.15	20.68	116.95	Horizontal
Sum	30							24.10	257.23	Horizontal
Band5	30	5	846.5	23.43	5.13	5.30	2.15	21.45	139.64	Horizontal
n78	30	20	3540	19.5	5.18	8.9	2.15	21.07	127.94	Horizontal
Sum	30							24.27	267.57	Horizontal
Band5	30	5	846.5	23.45	5.14	5.30	2.15	21.46	139.96	Horizontal
n78	30	20	3540	19.19	5.18	8.9	2.15	20.76	119.12	Horizontal
Sum	30							24.13	259.08	Horizontal
Band5	30	5	846.5	22.74	5.14	5.30	2.15	20.75	118.85	Horizontal
n78	30	20	3540	19.48	5.18	8.9	2.15	21.05	127.35	Horizontal
Sum	30							23.91	246.20	Horizontal
Band5	30	10	829	23.44	5.14	5.30	2.15	21.45	139.64	Horizontal
n78	30	100	3450	18.18	5.18	8.9	2.15	19.75	94.41	Horizontal
Sum	30							23.69	234.04	Horizontal
Band5	30	10	829	23.33	5.14	5.30	2.15	21.34	136.14	Horizontal

n78	30	100	3450	19.16	5.18	8.9	2.15	20.73	118.30	Horizontal
Sum	30							24.06	254.45	Horizontal
Band5	30	10	829	23.41	5.14	5.30	2.15	21.42	138.68	Horizontal
n78	30	100	3450	18.25	5.18	8.9	2.15	19.82	95.94	Horizontal
Sum	30							23.70	234.62	Horizontal
Band5	30	10	829	23.91	5.14	5.30	2.15	21.92	155.60	Horizontal
n78	30	100	3450	19.15	5.18	8.9	2.15	20.72	118.03	Horizontal
Sum	30							24.37	273.63	Horizontal

Band	SCS (kHz)	Bandwidth (MHz)	Frequency (MHz)	SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Correction (dB)	Power (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP
Band5	30	5	826.5	19.87	3.77	5.30	2.15	19.25	84.14	Vertical
n78	30	20	3460	14.66	3.91	8.9	2.15	17.50	56.23	Vertical
Sum	30							21.47	140.37	Vertical
Band5	30	5	826.5	21.24	5.13	5.30	2.15	19.26	84.33	Vertical
n78	30	20	3460	16.38	5.18	8.9	2.15	17.95	62.37	Vertical
Sum	30							21.66	146.71	Vertical
Band5	30	5	826.5	21.22	5.14	5.30	2.15	19.23	83.75	Vertical
n78	30	20	3460	15.92	5.18	8.9	2.15	17.49	56.10	Vertical
Sum	30							21.46	139.86	Vertical
Band5	30	5	826.5	21.23	5.14	5.30	2.15	19.24	83.95	Vertical
n78	30	20	3460	16.32	5.18	8.9	2.15	17.89	61.52	Vertical
Sum	30							21.63	145.46	Vertical
Band5	30	5	826.5	21.36	5.14	5.30	2.15	19.37	86.50	Vertical
n78	30	20	3450	16.87	5.18	8.9	2.15	18.44	69.82	Vertical
Sum	30							21.94	156.32	Vertical
Band5	30	5	826.5	21.37	5.14	5.30	2.15	19.38	86.70	Vertical
n78	30	20	3450	16.89	5.18	8.9	2.15	18.46	70.15	Vertical
Sum	30							21.95	156.84	Vertical
Band5	30	5	846.5	19.9	3.77	5.30	2.15	19.28	84.72	Vertical
n78	30	20	3540	15.65	3.91	8.9	2.15	18.49	70.63	Vertical
Sum	30							21.91	155.35	Vertical
Band5	30	5	846.5	21.24	5.13	5.30	2.15	19.26	84.33	Vertical
n78	30	20	3540	17.31	5.18	8.9	2.15	18.88	77.27	Vertical
Sum	30							22.08	161.60	Vertical
Band5	30	5	846.5	21.26	5.14	5.30	2.15	19.27	84.53	Vertical
n78	30	20	3540	17	5.18	8.9	2.15	18.57	71.94	Vertical
Sum	30							21.94	156.47	Vertical
Band5	30	5	846.5	20.87	5.14	5.30	2.15	18.88	77.27	Vertical
n78	30	20	3540	17.29	5.18	8.9	2.15	18.86	76.91	Vertical
Sum	30							21.88	154.18	Vertical
Band5	30	10	829	21.25	5.14	5.30	2.15	19.26	84.33	Vertical
n78	30	100	3450	15.99	5.18	8.9	2.15	17.56	57.02	Vertical
Sum	30							21.50	141.35	Vertical
Band5	30	10	829	21.14	5.14	5.30	2.15	19.15	82.22	Vertical

n78	30	100	3450	16.97	5.18	8.9	2.15	18.54	71.45	Vertical
Sum	30							21.87	153.67	Vertical
Band5	30	10	829	21.22	5.14	5.30	2.15	19.23	83.75	Vertical
n78	30	100	3450	16.06	5.18	8.9	2.15	17.63	57.94	Vertical
Sum	30							21.51	141.70	Vertical
Band5	30	10	829	22.28	5.14	5.30	2.15	20.29	106.91	Vertical
n78	30	100	3450	17.43	5.18	8.9	2.15	19.00	79.43	Vertical
Sum	30							22.70	186.34	Vertical

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain (dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1051, §22.917(a), §27.53(c)(g)(h)(m)

LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10}(P)$ [Watts]).

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P)$ [Watts]), where P is the transmitter power in Watts.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB at the channel edges and $55 + 10 \log_{10}(p)$ at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

NR Band 5/7/41/78

EN-DC: DC_5A_n78A

RESULTS

PASS

9.1 NR BAND 5

QPSK NR N5 10MHZ SCS 30kHz

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658	-48.62	6.14	27.3	-27.46	-13	-14.46	Horizontal
1658	-54.02	6.14	27.3	-32.86	-13	-19.86	Vertical
2487	-50.73	6.58	28.51	-28.80	-13	-15.80	Vertical
2487	-54.01	6.58	28.51	-32.08	-13	-19.08	Horizontal
340.2	-46.17	0.67	15.17	-31.66	-13	-18.66	Vertical
439.1	-50.01	0.93	15.06	-35.88	-13	-22.88	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-50.27	6.15	27.32	-29.10	-13	-16.10	Horizontal
1673	-45.22	6.15	27.32	-24.05	-13	-11.05	Vertical
2509.5	-48.53	6.61	28.51	-26.63	-13	-13.63	Vertical
2509.5	-54.25	6.61	28.51	-32.35	-13	-19.35	Horizontal
244.5	-53.07	0.65	16.34	-37.38	-13	-24.38	Vertical
441.9	-49.07	1.46	15.28	-35.25	-13	-22.25	Horizontal
Test Results for High Channel 844MHz							
1688	-47.40	6.18	27.32	-26.26	-13	-13.26	Horizontal
1688	-49.74	6.18	27.32	-28.60	-13	-15.60	Vertical
2532	-47.83	6.68	28.89	-25.62	-13	-12.62	Vertical
2532	-51.21	6.68	28.89	-29.00	-13	-16.00	Horizontal
378.9	-50.51	0.62	16.26	-34.87	-13	-21.87	Vertical
475.1	-54.23	1.39	15.28	-40.34	-13	-27.34	Horizontal

OPSK NR N5 20MHZ SCS 30kHz

Test Results for Low Channel 834MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1668	-53.65	6.14	27.3	-32.49	-13	-19.49	Horizontal
1668	-54.33	6.14	27.3	-33.17	-13	-20.17	Vertical
2502	-49.59	6.59	28.51	-27.67	-13	-14.67	Vertical
2502	-53.88	6.59	28.51	-31.96	-13	-18.96	Horizontal
379.0	-55.44	0.58	15.08	-40.94	-13	-27.94	Vertical
528.4	-55.53	0.79	15.20	-41.11	-13	-28.11	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-52.22	6.16	27.32	-31.06	-13	-18.06	Horizontal
1673	-49.02	6.16	27.32	-27.86	-13	-14.86	Vertical
2509.5	-50.25	6.68	28.51	-28.42	-13	-15.42	Vertical
2509.5	-50.68	6.68	28.51	-28.85	-13	-15.85	Horizontal
182.4	-54.87	0.60	15.10	-40.37	-13	-27.37	Vertical
616.1	-49.38	1.43	15.29	-35.52	-13	-22.52	Horizontal
Test Results for High Channel 839MHz							
1678	-45.39	6.21	27.32	-24.28	-13	-11.28	Horizontal
1678	-51.34	6.21	27.32	-30.23	-13	-17.23	Vertical
2517	-46.28	6.71	28.89	-24.10	-13	-11.10	Vertical
2517	-51.74	6.71	28.89	-29.56	-13	-16.56	Horizontal
367.1	-45.49	0.61	16.20	-29.91	-13	-16.91	Vertical
414.2	-49.92	1.55	15.76	-35.70	-13	-22.70	Horizontal

16QAM NR N5 10MHZ SCS 30kHz

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658	-53.90	6.14	27.3	-32.74	-13	-19.74	Horizontal
1658	-50.67	6.14	27.3	-29.51	-13	-16.51	Vertical
2487	-49.90	6.58	28.51	-27.97	-13	-14.97	Vertical
2487	-48.56	6.58	28.51	-26.63	-13	-13.63	Horizontal
351.7	-47.84	0.65	16.15	-32.35	-13	-19.35	Vertical
600.1	-49.15	1.46	15.84	-34.77	-13	-21.77	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-48.90	6.15	27.32	-27.73	-13	-14.73	Horizontal
1673	-45.80	6.15	27.32	-24.63	-13	-11.63	Vertical
2509.5	-54.66	6.61	28.51	-32.76	-13	-19.76	Vertical
2509.5	-54.39	6.61	28.51	-32.49	-13	-19.49	Horizontal
326.3	-48.26	0.61	16.25	-32.62	-13	-19.62	Vertical
489.0	-45.90	1.14	16.02	-31.02	-13	-18.02	Horizontal
Test Results for High Channel 844MHz							
1688	-47.07	6.18	27.32	-25.93	-13	-12.93	Horizontal
1688	-50.26	6.18	27.32	-29.12	-13	-16.12	Vertical
2532	-52.02	6.68	28.89	-29.81	-13	-16.81	Vertical
2532	-46.49	6.68	28.89	-24.28	-13	-11.28	Horizontal
378.5	-47.09	0.61	16.35	-31.34	-13	-18.34	Vertical
634.6	-52.81	1.42	16.04	-38.19	-13	-25.19	Horizontal

16QAM NR N5 20MHZ SCS 30kHz

Test Results for Low Channel 834MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1668	-45.43	6.14	27.3	-24.27	-13	-11.27	Horizontal
1668	-53.85	6.14	27.3	-32.69	-13	-19.69	Vertical
2502	-52.03	6.59	28.51	-30.11	-13	-17.11	Vertical
2502	-53.61	6.59	28.51	-31.69	-13	-18.69	Horizontal
313.1	-52.79	0.70	16.13	-37.36	-13	-24.36	Vertical
574.5	-49.73	1.01	15.43	-35.31	-13	-22.31	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-54.26	6.16	27.32	-33.10	-13	-20.10	Horizontal
1673	-45.17	6.16	27.32	-24.01	-13	-11.01	Vertical
2509.5	-50.06	6.68	28.51	-28.23	-13	-15.23	Vertical
2509.5	-51.11	6.68	28.51	-29.28	-13	-16.28	Horizontal
220.5	-49.48	0.65	15.27	-34.87	-13	-21.87	Vertical
424.3	-51.39	1.45	15.41	-37.43	-13	-24.43	Horizontal
Test Results for High Channel 839MHz							
1678	-49.46	6.21	27.32	-28.35	-13	-15.35	Horizontal
1678	-46.36	6.21	27.32	-25.25	-13	-12.25	Vertical
2517	-50.61	6.71	28.89	-28.43	-13	-15.43	Vertical
2517	-49.61	6.71	28.89	-27.43	-13	-14.43	Horizontal
393.7	-49.15	0.63	15.30	-34.49	-13	-21.49	Vertical
653.4	-52.79	1.39	16.57	-37.61	-13	-24.61	Horizontal

9.2 NR BAND 7

QPSK NR N7 10MHZ SCS 30kHz

Test Results for Low Channel 2505MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5010	-48.69	6.14	27.3	-27.53	-13	-14.53	Horizontal
5010	-53.71	6.14	27.3	-32.55	-13	-19.55	Vertical
7515	-51.47	6.58	28.51	-29.54	-13	-16.54	Vertical
7515	-53.88	6.58	28.51	-31.95	-13	-18.95	Horizontal
178.5	-46.15	0.67	15.17	-31.64	-13	-18.64	Vertical
463.3	-49.75	0.93	15.06	-35.62	-13	-22.62	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-50.01	6.15	27.32	-28.84	-13	-15.84	Horizontal
5070	-45.07	6.15	27.32	-23.90	-13	-10.90	Vertical
7605	-48.26	6.61	28.51	-26.36	-13	-13.36	Vertical
7605	-53.43	6.61	28.51	-31.53	-13	-18.53	Horizontal
197.9	-53.44	0.65	16.34	-37.75	-13	-24.75	Vertical
368.5	-49.50	1.46	15.28	-35.68	-13	-22.68	Horizontal
Test Results for High Channel 2565MHz							
5130	-47.42	6.18	27.32	-26.28	-13	-13.28	Horizontal
5130	-50.05	6.18	27.32	-28.91	-13	-15.91	Vertical
7695	-47.29	6.68	28.89	-25.08	-13	-12.08	Vertical
7695	-50.54	6.68	28.89	-28.33	-13	-15.33	Horizontal
223.3	-50.02	0.62	16.26	-34.38	-13	-21.38	Vertical
369.3	-54.22	1.39	15.28	-40.33	-13	-27.33	Horizontal

OPSK NR N7 20MHZ SCS 30kHz

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020	-53.84	6.14	27.3	-32.68	-13	-19.68	Horizontal
5020	-54.90	6.14	27.3	-33.74	-13	-20.74	Vertical
7530	-49.57	6.59	28.51	-27.65	-13	-14.65	Vertical
7530	-53.34	6.59	28.51	-31.42	-13	-18.42	Horizontal
213.8	-55.10	0.58	15.08	-40.60	-13	-27.60	Vertical
393.7	-55.08	0.79	15.20	-40.67	-13	-27.67	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-52.31	6.16	27.32	-31.15	-13	-18.15	Horizontal
5070	-49.26	6.16	27.32	-28.10	-13	-15.10	Vertical
7605	-49.74	6.68	28.51	-27.91	-13	-14.91	Vertical
7605	-51.16	6.68	28.51	-29.33	-13	-16.33	Horizontal
204.6	-54.52	0.60	15.10	-40.02	-13	-27.02	Vertical
450.1	-49.86	1.43	15.29	-36.00	-13	-23.00	Horizontal
Test Results for High Channel 2560MHz							
5120	-46.29	6.21	27.32	-25.18	-13	-12.18	Horizontal
5120	-51.63	6.21	27.32	-30.52	-13	-17.52	Vertical
7680	-46.74	6.71	28.89	-24.56	-13	-11.56	Vertical
7680	-52.12	6.71	28.89	-29.94	-13	-16.94	Horizontal
237.7	-45.00	0.61	16.20	-29.41	-13	-16.41	Vertical
373.7	-49.87	1.55	15.76	-35.66	-13	-22.66	Horizontal

16QAM NR N7 10MHZ SCS 30kHz

Test Results for Low Channel 2505MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5010	-53.81	6.14	27.3	-32.65	-13	-19.65	Horizontal
5010	-50.65	6.14	27.3	-29.49	-13	-16.49	Vertical
7515	-50.59	6.58	28.51	-28.66	-13	-15.66	Vertical
7515	-48.68	6.58	28.51	-26.75	-13	-13.75	Horizontal
170.9	-47.96	0.65	16.15	-32.46	-13	-19.46	Vertical
383.8	-48.85	1.46	15.84	-34.47	-13	-21.47	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-49.29	6.15	27.32	-28.12	-13	-15.12	Horizontal
5070	-46.43	6.15	27.32	-25.26	-13	-12.26	Vertical
7605	-54.03	6.61	28.51	-32.13	-13	-19.13	Vertical
7605	-54.23	6.61	28.51	-32.33	-13	-19.33	Horizontal
170.5	-48.55	0.61	16.25	-32.91	-13	-19.91	Vertical
426.3	-46.00	1.14	16.02	-31.12	-13	-18.12	Horizontal
Test Results for High Channel 2565MHz							
5130	-47.00	6.18	27.32	-25.86	-13	-12.86	Horizontal
5130	-50.09	6.18	27.32	-28.95	-13	-15.95	Vertical
7695	-51.52	6.68	28.89	-29.31	-13	-16.31	Vertical
7695	-46.77	6.68	28.89	-24.56	-13	-11.56	Horizontal
233.9	-47.50	0.61	16.35	-31.76	-13	-18.76	Vertical
471.2	-53.03	1.42	16.04	-38.40	-13	-25.40	Horizontal

16QAM NR N7 20MHZ SCS 30kHz

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020	-44.91	6.14	27.3	-23.75	-13	-10.75	Horizontal
5020	-54.38	6.14	27.3	-33.22	-13	-20.22	Vertical
7530	-52.45	6.59	28.51	-30.53	-13	-17.53	Vertical
7530	-53.36	6.59	28.51	-31.44	-13	-18.44	Horizontal
283.5	-53.20	0.70	16.13	-37.77	-13	-24.77	Vertical
274.6	-49.62	1.01	15.43	-35.20	-13	-22.20	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-54.79	6.16	27.32	-33.63	-13	-20.63	Horizontal
5070	-45.94	6.16	27.32	-24.78	-13	-11.78	Vertical
7605	-50.86	6.68	28.51	-29.03	-13	-16.03	Vertical
7605	-50.47	6.68	28.51	-28.64	-13	-15.64	Horizontal
199.8	-49.29	0.65	15.27	-34.68	-13	-21.68	Vertical
418.3	-50.57	1.45	15.41	-36.61	-13	-23.61	Horizontal
Test Results for High Channel 2560MHz							
5120	-49.51	6.21	27.32	-28.40	-13	-15.40	Horizontal
5120	-45.94	6.21	27.32	-24.83	-13	-11.83	Vertical
7680	-50.41	6.71	28.89	-28.23	-13	-15.23	Vertical
7680	-49.56	6.71	28.89	-27.38	-13	-14.38	Horizontal
229.9	-49.68	0.63	15.30	-35.01	-13	-22.01	Vertical
485.0	-52.90	1.39	16.57	-37.72	-13	-24.72	Horizontal

9.3 NR BAND 41

QPSK NR N41 10MHZ SCS 30kHz

Test Results for Low Channel 2501.01MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5002.02	-48.69	6.14	27.3	-27.53	-13	-14.53	Horizontal
5002.02	-54.25	6.14	27.3	-33.09	-13	-20.09	Vertical
7503.3	-51.49	6.58	28.51	-29.56	-13	-16.56	Vertical
7503.3	-53.54	6.58	28.51	-31.61	-13	-18.61	Horizontal
265.0	-46.33	0.67	15.17	-31.83	-13	-18.83	Vertical
499.4	-49.40	0.93	15.06	-35.26	-13	-22.26	Horizontal
Test Results for Mid Channel 2592.99MHz							
5185.98	-50.10	6.15	27.32	-28.93	-13	-15.93	Horizontal
5185.98	-45.01	6.15	27.32	-23.84	-13	-10.84	Vertical
7778.97	-48.14	6.61	28.51	-26.24	-13	-13.24	Vertical
7778.97	-53.90	6.61	28.51	-32.00	-13	-19.00	Horizontal
258.5	-53.48	0.65	16.34	-37.79	-13	-24.79	Vertical
528.1	-49.07	1.46	15.28	-35.25	-13	-22.25	Horizontal
Test Results for High Channel 2685MHz							
5370	-47.66	6.18	27.32	-26.52	-13	-13.52	Horizontal
5370	-49.75	6.18	27.32	-28.61	-13	-15.61	Vertical
8055	-47.54	6.68	28.89	-25.33	-13	-12.33	Vertical
8055	-50.34	6.68	28.89	-28.13	-13	-15.13	Horizontal
250.5	-50.25	0.62	16.26	-34.61	-13	-21.61	Vertical
581.7	-53.71	1.39	15.28	-39.83	-13	-26.83	Horizontal

QPSK NR N41 100MHZ SCS 30kHz

Test Results for Low Channel 2546.01MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5092.02	-53.82	6.14	27.3	-32.66	-13	-19.66	Horizontal
5092.02	-54.41	6.14	27.3	-33.25	-13	-20.25	Vertical
7638.03	-49.79	6.59	28.51	-27.87	-13	-14.87	Vertical
7638.03	-53.32	6.59	28.51	-31.40	-13	-18.40	Horizontal
245.4	-55.39	0.58	15.08	-40.89	-13	-27.89	Vertical
443.8	-55.39	0.79	15.20	-40.98	-13	-27.98	Horizontal
Test Results for Mid Channel 2592.99MHz							
5185.98	-52.16	6.16	27.32	-31.00	-13	-18.00	Horizontal
5185.98	-48.83	6.16	27.32	-27.67	-13	-14.67	Vertical
7778.97	-50.03	6.68	28.51	-28.20	-13	-15.20	Vertical
7778.97	-51.03	6.68	28.51	-29.20	-13	-16.20	Horizontal
276.3	-54.65	0.60	15.10	-40.14	-13	-27.14	Vertical
448.2	-49.91	1.43	15.29	-36.04	-13	-23.04	Horizontal
Test Results for High Channel 2640MHz							
5280	-45.81	6.21	27.32	-24.70	-13	-11.70	Horizontal
5280	-51.58	6.21	27.32	-30.47	-13	-17.47	Vertical
7920	-46.40	6.71	28.89	-24.22	-13	-11.22	Vertical
7920	-52.34	6.71	28.89	-30.16	-13	-17.16	Horizontal
213.7	-45.62	0.61	16.20	-30.03	-13	-17.03	Vertical
550.7	-49.18	1.55	15.76	-34.97	-13	-21.97	Horizontal

16QAM NR N41 10MHZ SCS 30kHz

Test Results for Low Channel 2501.01MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5002.02	-53.79	6.14	27.3	-32.63	-13	-19.63	Horizontal
5002.02	-50.90	6.14	27.3	-29.74	-13	-16.74	Vertical
7503.3	-50.28	6.58	28.51	-28.35	-13	-15.35	Vertical
7503.3	-48.85	6.58	28.51	-26.92	-13	-13.92	Horizontal
294.2	-47.86	0.65	16.15	-32.36	-13	-19.36	Vertical
644.6	-49.07	1.46	15.84	-34.69	-13	-21.69	Horizontal
Test Results for Mid Channel 2592.99MHz							
5185.98	-49.20	6.15	27.32	-28.03	-13	-15.03	Horizontal
5185.98	-45.63	6.15	27.32	-24.46	-13	-11.46	Vertical
7778.97	-54.89	6.61	28.51	-32.99	-13	-19.99	Vertical
7778.97	-54.88	6.61	28.51	-32.98	-13	-19.98	Horizontal
295.5	-48.65	0.61	16.25	-33.01	-13	-20.01	Vertical
456.1	-45.89	1.14	16.02	-31.01	-13	-18.01	Horizontal
Test Results for High Channel 2685MHz							
5370	-47.21	6.18	27.32	-26.07	-13	-13.07	Horizontal
5370	-50.19	6.18	27.32	-29.05	-13	-16.05	Vertical
8055	-52.00	6.68	28.89	-29.79	-13	-16.79	Vertical
8055	-47.16	6.68	28.89	-24.95	-13	-11.95	Horizontal
306.0	-46.93	0.61	16.35	-31.19	-13	-18.19	Vertical
596.6	-53.12	1.42	16.04	-38.49	-13	-25.49	Horizontal

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Test Results for Low Channel 2546.01MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5092.02	-45.37	6.14	27.3	-24.21	-13	-11.21	Horizontal
5092.02	-53.81	6.14	27.3	-32.65	-13	-19.65	Vertical
7638.03	-52.36	6.59	28.51	-30.44	-13	-17.44	Vertical
7638.03	-53.36	6.59	28.51	-31.44	-13	-18.44	Horizontal
271.9	-52.94	0.70	16.13	-37.51	-13	-24.51	Vertical
468.6	-49.66	1.01	15.43	-35.24	-13	-22.24	Horizontal
Test Results for Mid Channel 2592.99MHz							
5185.98	-54.47	6.16	27.32	-33.31	-13	-20.31	Horizontal
5185.98	-45.86	6.16	27.32	-24.70	-13	-11.70	Vertical
7778.97	-50.85	6.68	28.51	-29.02	-13	-16.02	Vertical
7778.97	-50.80	6.68	28.51	-28.97	-13	-15.97	Horizontal
215.0	-48.92	0.65	15.27	-34.30	-13	-21.30	Vertical
509.7	-51.49	1.45	15.41	-37.53	-13	-24.53	Horizontal
Test Results for High Channel 2640MHz							
5280	-49.83	6.21	27.32	-28.72	-13	-15.72	Horizontal
5280	-46.34	6.21	27.32	-25.23	-13	-12.23	Vertical
7920	-50.32	6.71	28.89	-28.14	-13	-15.14	Vertical
7920	-48.82	6.71	28.89	-26.64	-13	-13.64	Horizontal
306.4	-49.09	0.63	15.30	-34.43	-13	-21.43	Vertical
498.2	-52.62	1.39	16.57	-37.44	-13	-24.44	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)
 Over Limit= : P_{Mea}(dBm)-Limit(dBm)

9.4 NR BAND 78

QPSK NR N78 10MHZ SCS 30kHz

Test Results for Low Channel 3455MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
6910	-53.49	2.63	28.37	-27.75	-13	-14.75	Horizontal
6910	-55.07	2.63	28.37	-29.33	-13	-16.33	Vertical
10365	-52.43	3.38	28.25	-27.56	-13	-14.56	Vertical
10365	-53.86	3.38	28.25	-28.99	-13	-15.99	Horizontal
279.8	-45.76	0.61	15.10	-31.27	-13	-18.27	Vertical
511.4	-49.04	1.38	15.45	-34.97	-13	-21.97	Horizontal
Test Results for Mid Channel 3500MHz							
7000	-53.04	2.65	28.33	-27.36	-13	-14.36	Horizontal
7000	-48.02	2.65	28.33	-22.34	-13	-9.34	Vertical
10500	-50.83	4.14	28.26	-26.71	-13	-13.71	Vertical
10500	-53.54	4.14	28.26	-29.42	-13	-16.42	Horizontal
307.9	-50.16	0.62	16.35	-34.42	-13	-21.42	Vertical
565.7	-49.66	1.39	15.55	-35.50	-13	-22.50	Horizontal
Test Results for High Channel 3545MHz							
7090	-46.78	2.65	28.41	-21.02	-13	-8.02	Horizontal
7090	-53.26	2.65	28.41	-27.50	-13	-14.50	Vertical
10635	-50.39	5.23	28.15	-27.47	-13	-14.47	Vertical
10635	-54.84	5.23	28.89	-31.18	-13	-18.18	Horizontal
316.9	-49.60	0.65	15.20	-35.05	-13	-22.05	Vertical
532.7	-52.10	1.10	15.16	-38.03	-13	-25.03	Horizontal

QPSK NR N78 100MHZ SCS 30kHz

Test Results for Mid Channel 3500MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
7000	-48.95	2.63	28.33	-23.25	-13	-10.25	Horizontal
7000	-52.14	2.63	28.33	-26.44	-13	-13.44	Vertical
10500	-46.30	3.38	28.26	-21.42	-13	-8.42	Vertical
10500	-47.00	3.38	28.26	-22.12	-13	-9.12	Horizontal
324.6	-52.24	0.62	15.28	-37.57	-13	-24.57	Vertical
465.8	-50.60	1.24	16.64	-35.21	-13	-22.21	Horizontal

16QAM NR N78 10MHZ SCS 30kHz

Test Results for Low Channel 3455MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
6910	-47.28	2.63	28.37	-21.54	-13	-8.54	Horizontal
6910	-52.01	2.63	28.37	-26.27	-13	-13.27	Vertical
10365	-47.48	3.38	28.25	-22.61	-13	-9.61	Vertical
10365	-51.28	3.38	28.25	-26.41	-13	-13.41	Horizontal
181.3	-51.73	0.59	15.16	-37.16	-13	-24.16	Vertical
613.7	-47.36	1.40	16.07	-32.69	-13	-19.69	Horizontal
Test Results for Mid Channel 3500MHz							
7000	-54.87	2.65	28.33	-29.19	-13	-16.19	Horizontal
7000	-51.31	2.65	28.33	-25.63	-13	-12.63	Vertical
10500	-52.90	4.14	28.26	-28.78	-13	-15.78	Vertical
10500	-53.13	4.14	28.26	-29.01	-13	-16.01	Horizontal
240.5	-55.03	0.64	15.06	-40.61	-13	-27.61	Vertical
535.8	-51.53	1.44	15.22	-37.75	-13	-24.75	Horizontal
Test Results for High Channel 3545MHz							
7090	-50.88	2.65	28.41	-25.12	-13	-12.12	Horizontal
7090	-52.51	2.65	28.41	-26.75	-13	-13.75	Vertical
10635	-46.49	5.23	28.15	-23.57	-13	-10.57	Vertical
10635	-52.91	5.23	28.89	-29.25	-13	-16.25	Horizontal
187.4	-47.93	0.62	16.25	-32.30	-13	-19.30	Vertical
464.1	-54.36	1.42	16.41	-39.38	-13	-26.38	Horizontal

16QAM NR N78 100MHZ SCS 30kHz

Test Results for Mid Channel 3500MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
7000	-54.81	2.63	28.33	-29.11	-13	-16.11	Horizontal
7000	-51.57	2.63	28.33	-25.87	-13	-12.87	Vertical
10500	-51.42	3.38	28.26	-26.54	-13	-13.54	Vertical
10500	-52.58	3.38	28.26	-27.70	-13	-14.70	Horizontal
287.2	-46.71	0.69	16.00	-31.40	-13	-18.40	Vertical
549.6	-54.59	0.79	16.05	-39.33	-13	-26.33	Horizontal

9.5 BAND 5+NR BAND 78

EN-DC QPSK B5 5M+N78 10M SCS 30kHz

Test Results for Low Channel							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
6910	-48.31	2.63	28.37	-22.57	-13	-9.57	Horizontal
6910	-53.49	2.63	28.37	-27.75	-13	-14.75	Vertical
10365	-51.07	3.38	28.25	-26.20	-13	-13.20	Vertical
10365	-54.06	3.38	28.25	-29.19	-13	-16.19	Horizontal
1653.0	-46.25	2.78	27.51	-21.52	-13	-8.52	Horizontal
1653.0	-49.53	2.78	27.51	-24.80	-13	-11.80	Vertical
2479.5	-48.36	2.90	27.81	-23.45	-13	-10.45	Vertical
2479.5	-54.18	2.90	27.81	-29.27	-13	-16.27	Horizontal
334.8	-51.03	0.59	16.18	-35.45	-13	-22.45	Vertical
526.7	-53.18	1.09	15.03	-39.24	-13	-26.24	Horizontal
Test Results for Mid Channel							
7000	-49.52	2.65	28.33	-23.84	-13	-10.84	Horizontal
7000	-49.31	2.65	28.33	-23.63	-13	-10.63	Vertical
10500	-49.54	4.14	28.26	-25.42	-13	-12.42	Vertical
10500	-53.44	4.14	28.26	-29.32	-13	-16.32	Horizontal
1673	-49.15	2.78	27.51	-24.42	-13	-11.42	Horizontal
1673	-47.54	2.78	27.51	-22.81	-13	-9.81	Vertical
2509.5	-49.51	2.92	27.76	-24.67	-13	-11.67	Vertical
2509.5	-51.26	2.92	27.76	-26.42	-13	-13.42	Horizontal
177.4	-44.86	0.71	15.25	-30.32	-13	-17.32	Vertical
559.9	-45.94	1.35	16.71	-30.58	-13	-17.58	Horizontal
Test Results for High Channel							
7090	-48.38	2.65	28.41	-22.62	-13	-9.62	Horizontal
7090	-48.19	2.65	28.41	-22.43	-13	-9.43	Vertical
10635	-49.18	5.23	28.15	-26.26	-13	-13.26	Vertical
10635	-46.29	5.23	28.89	-22.63	-13	-9.63	Horizontal
1693	-46.24	2.81	27.51	-21.54	-13	-8.54	Horizontal
1693	-53.98	2.81	27.51	-29.28	-13	-16.28	Vertical
2539.5	-48.55	2.93	27.77	-23.71	-13	-10.71	Vertical
2539.5	-49.57	2.93	27.77	-24.73	-13	-11.73	Horizontal
218.6	-47.79	0.67	16.19	-32.27	-13	-19.27	Vertical
411.1	-51.31	1.20	15.22	-37.29	-13	-24.29	Horizontal

EN-DC 16QAM B5 5M+N78 10M SCS 30kHz

Test Results for Low Channel							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
6910	-53.89	2.63	28.37	-28.15	-13	-15.15	Horizontal
6910	-47.87	2.63	28.37	-22.13	-13	-9.13	Vertical
10365	-46.61	3.38	28.25	-21.74	-13	-8.74	Vertical
10365	-46.25	3.38	28.25	-21.38	-13	-8.38	Horizontal
1653.0	-52.40	2.78	27.51	-27.67	-13	-14.67	Horizontal
1653.0	-51.64	2.78	27.51	-26.91	-13	-13.91	Vertical
2479.5	-54.77	2.90	27.81	-29.86	-13	-16.86	Vertical
2479.5	-46.14	2.90	27.81	-21.23	-13	-8.23	Horizontal
363.2	-52.02	0.70	16.27	-36.45	-13	-23.45	Vertical
648.5	-53.18	1.45	16.75	-37.88	-13	-24.88	Horizontal
Test Results for Mid Channel							
7000	-44.75	2.65	28.33	-19.07	-13	-6.07	Horizontal
7000	-50.35	2.65	28.33	-24.67	-13	-11.67	Vertical
10500	-44.87	4.14	28.26	-20.75	-13	-7.75	Vertical
10500	-50.46	4.14	28.26	-26.34	-13	-13.34	Horizontal
1673	-49.71	2.78	27.51	-24.98	-13	-11.98	Horizontal
1673	-50.14	2.78	27.51	-25.41	-13	-12.41	Vertical
2509.5	-51.91	2.92	27.76	-27.07	-13	-14.07	Vertical
2509.5	-54.47	2.92	27.76	-29.63	-13	-16.63	Horizontal
174.8	-50.21	0.69	16.23	-34.67	-13	-21.67	Vertical
500.4	-47.57	1.19	16.33	-32.43	-13	-19.43	Horizontal
Test Results for High Channel							
7090	-49.48	2.65	28.41	-23.72	-13	-10.72	Horizontal
7090	-45.25	2.65	28.41	-19.49	-13	-6.49	Vertical
10635	-53.62	5.23	28.15	-30.70	-13	-17.70	Vertical
10635	-45.82	5.23	28.89	-22.16	-13	-9.16	Horizontal
1693	-49.84	2.81	27.51	-25.14	-13	-12.14	Horizontal
1693	-52.64	2.81	27.51	-27.94	-13	-14.94	Vertical
2539.5	-45.53	2.93	27.77	-20.69	-13	-7.69	Vertical
2539.5	-50.57	2.93	27.77	-25.73	-13	-12.73	Horizontal
299.6	-46.58	0.65	16.00	-31.23	-13	-18.23	Vertical
553.4	-49.72	1.27	15.65	-35.34	-13	-22.34	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)
 Over Limit= : P_{Mea}(dBm)-Limit(dBm)

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §27.54

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.29V, Normal, DC 3.87V and High voltage, DC 4.45V.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to -30°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

- ☐ NR Band 5/7/41/78

RESULTS

See the following pages.

10.1 NR BAND 5

N5 QPSK, (20MHz CH 167300 RB Allocation 135@67)

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	1.09	0.00130	2.5
3.87	836.5	3.09	0.00369	2.5
4.45	836.5	0.09	0.00011	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.91	0.00707	2.5
Extreme (50C)	836.5	4.91	0.00587	2.5
Extreme (40C)	836.5	5.41	0.00647	2.5
Extreme (30C)	836.5	0.91	0.00109	2.5
Extreme (10C)	836.5	5.91	0.00707	2.5
Extreme (0C)	836.5	6.91	0.00826	2.5
Extreme (-10C)	836.5	9.91	0.01185	2.5
Extreme (-20C)	836.5	10.91	0.01304	2.5
Extreme (-30C)	836.5	11.91	0.01424	2.5

N5 16QAM, (20MHz CH 167300 RB Allocation 135@67)

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	6.09	0.00728	2.5
3.87	836.5	3.09	0.00369	2.5
4.45	836.5	2.09	0.00250	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	4.68	0.00559	2.5
Extreme (50C)	836.5	5.51	0.00659	2.5
Extreme (40C)	836.5	1.91	0.00228	2.5
Extreme (30C)	836.5	2.91	0.00348	2.5
Extreme (10C)	836.5	6.91	0.00826	2.5
Extreme (0C)	836.5	9.91	0.01185	2.5
Extreme (-10C)	836.5	7.91	0.00946	2.5
Extreme (-20C)	836.5	12.91	0.01543	2.5
Extreme (-30C)	836.5	0.91	0.00109	2.5

10.2 NR BAND 7

N7 QPSK, (20MHz CH 507000 RB Allocation 135@67)

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2535	1.31	0.00052	2.5
3.87	2535	3.31	0.00131	2.5
4.45	2535	0.31	0.00012	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	5.69	0.00224	2.5
Extreme (50C)	2535	4.69	0.00185	2.5
Extreme (40C)	2535	5.19	0.00205	2.5
Extreme (30C)	2535	0.69	0.00027	2.5
Extreme (10C)	2535	5.69	0.00224	2.5
Extreme (0C)	2535	6.69	0.00264	2.5
Extreme (-10C)	2535	9.69	0.00382	2.5
Extreme (-20C)	2535	10.69	0.00422	2.5
Extreme (-30C)	2535	11.69	0.00461	2.5

N7 16QAM, (20MHz CH 507000 RB Allocation 135@67)

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2535	6.31	0.00249	2.5
3.87	2535	3.31	0.00131	2.5
4.45	2535	2.31	0.00091	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	4.46	0.00176	2.5
Extreme (50C)	2535	5.29	0.00209	2.5
Extreme (40C)	2535	1.69	0.00067	2.5
Extreme (30C)	2535	2.69	0.00106	2.5
Extreme (10C)	2535	6.69	0.00264	2.5
Extreme (0C)	2535	9.69	0.00382	2.5
Extreme (-10C)	2535	7.69	0.00303	2.5
Extreme (-20C)	2535	12.69	0.00501	2.5
Extreme (-30C)	2535	0.69	0.00027	2.5

10.3 NR BAND 41

N41 QPSK, (100MHz CH 518598 RB Allocation 135@67 SCS 30K)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2592.99	2.50	0.00096	2.5
3.87	2592.99	3.60	0.00139	2.5
4.45	2592.99	1.98	0.00076	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2592.99	5.55	0.00214	2.5
Extreme (50C)	2592.99	4.55	0.00175	2.5
Extreme (40C)	2592.99	5.05	0.00195	2.5
Extreme (30C)	2592.99	0.55	0.00021	2.5
Extreme (10C)	2592.99	5.55	0.00214	2.5
Extreme (0C)	2592.99	6.55	0.00253	2.5
Extreme (-10C)	2592.99	9.55	0.00368	2.5
Extreme (-20C)	2592.99	10.55	0.00407	2.5
Extreme (-30C)	2592.99	11.55	0.00445	2.5

N41 16QAM, (100MHz CH 518598 RB Allocation 135@67 SCS 30K)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2592.99	6.45	0.00249	2.5
3.87	2592.99	3.45	0.00133	2.5
4.45	2592.99	2.45	0.00094	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2592.99	5.22	0.00201	2.5
Extreme (50C)	2592.99	6.05	0.00233	2.5
Extreme (40C)	2592.99	2.45	0.00094	2.5
Extreme (30C)	2592.99	3.45	0.00133	2.5
Extreme (10C)	2592.99	7.45	0.00287	2.5
Extreme (0C)	2592.99	10.45	0.00403	2.5
Extreme (-10C)	2592.99	8.45	0.00326	2.5
Extreme (-20C)	2592.99	13.45	0.00519	2.5
Extreme (-30C)	2592.99	1.45	0.00056	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.4 NR BAND 78

N78 QPSK, (100MHz CH 633333 RB Allocation 135@67)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	3500	1.45	0.00041	2.5
3.87	3500	3.45	0.00099	2.5
4.45	3500	0.45	0.00013	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	3500	5.84	0.00167	2.5
Extreme (50C)	3500	4.84	0.00138	2.5
Extreme (40C)	3500	5.34	0.00153	2.5
Extreme (30C)	3500	0.84	0.00024	2.5
Extreme (10C)	3500	5.84	0.00167	2.5
Extreme (0C)	3500	6.84	0.00195	2.5
Extreme (-10C)	3500	9.84	0.00281	2.5
Extreme (-20C)	3500	10.84	0.00310	2.5
Extreme (-30C)	3500	11.84	0.00338	2.5

N78 16QAM, (100MHz CH 633333 RB Allocation 135@67)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	3500	5.84	0.00167	2.5
3.87	3500	2.84	0.00081	2.5
4.45	3500	1.84	0.00053	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 78 DFT_QAM16, (CH 518598 1@1 100MHz BANDWIDTH)				
Normal (25C)	3500	4.61	0.00132	2.5
Extreme (50C)	3500	5.44	0.00155	2.5
Extreme (40C)	3500	1.84	0.00053	2.5
Extreme (30C)	3500	2.84	0.00081	2.5
Extreme (10C)	3500	6.84	0.00195	2.5
Extreme (0C)	3500	9.84	0.00281	2.5
Extreme (-10C)	3500	7.84	0.00224	2.5
Extreme (-20C)	3500	12.84	0.00367	2.5
Extreme (-30C)	3500	0.84	0.00024	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

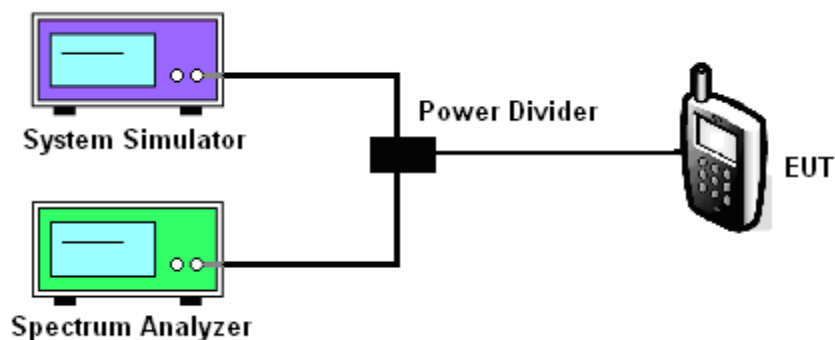
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For GSM/EGPRS operating modes:
 - a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
 - b. Set EUT in maximum power output, and triggered the burst signal.
 - c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
4. For UMTS operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



11.5 MODES TESTED

- ☐ NR Band5/7/41/78
- ☐

Test data reference attachment.

----END OF REPORT----