

Partial FCC Test Report (Spot Check: Part 27 – SA Mode: n77, n78)

Report No.: RFBGDY-WTW-P22120194-6

FCC ID: T8GSAN9200

Test Model: SA-N9200 eAP

Received Date: Dec. 06, 2022

Test Date: Feb. 21 ~ Feb. 22, 2023

Issued Date: Mar. 29, 2023

Applicant: Harman Connected Car Division

Address: Parking 3, 85748 Garching Germany

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBGDY-WTW-P22120194-6	Original release	Mar. 29, 2023

1 Certificate of Conformity

Product: Module

Brand: Harman

Test Model: SA-N9200 eAP

Sample Status: Standard Sample

Applicant: Harman Connected Car Division

Test Date: Feb. 21 ~ Feb. 22, 2023

Standards: FCC Part 27, Subpart C, O, Q

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

Prepared by : Celine Chou , **Date:** Mar. 29, 2023
Celine Chou / Senior Specialist

Approved by : Jeremy Lin , **Date:** Mar. 29, 2023
Jeremy Lin / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (k)	Equivalent Radiated Power	Pass	Meet the requirement of limit.
2.1053 27.53(n)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -21.86dB at 80.44MHz.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.44 dB
	30MHz ~ 200MHz	2.93 dB
	200MHz ~ 1000MHz	2.95 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 27, 2022	Apr. 26, 2023
Signal Analyzer Agilent	N9010A	MY52220207	Jan. 03, 2023	Jan. 02, 2024
Loop Antenna TESEQ	HLA 6121	45745	Jul. 27, 2022	Jul. 26, 2023
Pre-amplifier EMCI	EMC001340	980201	Sep. 23, 2022	Sep. 22, 2023
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	Jan. 07, 2023	Jan. 06, 2024
Preamplifier EMCI	EMC 330H	980112	Oct. 01, 2022	Sep. 30, 2023
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Oct. 21, 2022	Oct. 20, 2023
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 01, 2022	Sep. 30, 2023
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 13, 2022	Nov. 12, 2023
Preamplifier EMCI	EMC 012645	980115	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable EMCI	EMC104-SM-SM-8000	171005	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 01, 2022	Sep. 30, 2023
RF FLITER MICRO-TRONICS	BRM50716	058	Jun. 14, 2022	Jun. 13, 2023
RF FLITER MICRO-TRONICS	BRM17690	005	Jun. 14, 2022	Jun. 13, 2023
Pre-Amplifier EMCI	EMC 184045	980116	Oct. 01, 2022	Sep. 30, 2023
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	148	Nov. 13, 2022	Nov. 12, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Jul. 09, 2022	Jul. 08, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Jul. 09, 2022	Jul. 08, 2023
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-440H	AT93021705	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller Max-Full	MF-7802	NA	NA	NA
Boresight antenna tower fixture BV	BAF-02	7	NA	NA
UXM 5G Wireless Test Platform Keysight	E7515B	MY60102114	May 20, 2022	May 19, 2023

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HY - 966 chamber 5.

3 General Information

3.1 General Description of EUT

Product	Module		
Brand	Harman		
Test Model	SA-N9200 eAP		
Sample Status	Standard Sample		
Power Supply rating	4.2Vdc		
Modulation Type	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM		
Waveform Type	CP-OFDM, DFT-s-OFDM		
Operating Frequency	Part 27O	n78 (Channel Bandwidth 10MHz)	3705.00MHz ~ 3795.00MHz
		n78 (Channel Bandwidth 15MHz)	3707.52MHz ~ 3792.48MHz
		n78 (Channel Bandwidth 20MHz)	3710.01MHz ~ 3789.99MHz
		n78 (Channel Bandwidth 40MHz)	3720.00MHz ~ 3780.00MHz
		n78 (Channel Bandwidth 50MHz)	3725.01MHz ~ 3774.99MHz
		n78 (Channel Bandwidth 60MHz)	3730.02MHz ~ 3769.98MHz
		n78 (Channel Bandwidth 80MHz)	3740.01MHz ~ 3759.99MHz
		n78 (Channel Bandwidth 90MHz)	3745.02MHz ~ 3754.98MHz
		n78 (Channel Bandwidth 100MHz)	3750.00MHz
	Part 27Q	n77 (Channel Bandwidth 10MHz)	3455.01MHz ~ 3544.98MHz
		n77 (Channel Bandwidth 15MHz)	3457.50MHz ~ 3542.49MHz
		n77 (Channel Bandwidth 20MHz)	3460.02MHz ~ 3540.00MHz
		n77 (Channel Bandwidth 40MHz)	3470.01MHz ~ 3529.98MHz
		n77 (Channel Bandwidth 50MHz)	3475.02MHz ~ 3525.00MHz
		n77 (Channel Bandwidth 60MHz)	3480.00MHz ~ 3519.99MHz
		n77 (Channel Bandwidth 80MHz)	3490.02MHz ~ 3510.00MHz
		n77 (Channel Bandwidth 90MHz)	3495.00MHz ~ 3504.99MHz
		n77 (Channel Bandwidth 100MHz)	3500.01MHz
		n78 (Channel Bandwidth 10MHz)	3455.01MHz ~ 3544.98MHz
		n78 (Channel Bandwidth 15MHz)	3457.50MHz ~ 3542.49MHz
		n78 (Channel Bandwidth 20MHz)	3460.02MHz ~ 3540.00MHz
		n78 (Channel Bandwidth 40MHz)	3470.01MHz ~ 3529.98MHz
		n78 (Channel Bandwidth 50MHz)	3475.02MHz ~ 3525.00MHz
		n78 (Channel Bandwidth 60MHz)	3480.00MHz ~ 3519.99MHz
		n78 (Channel Bandwidth 80MHz)	3490.02MHz ~ 3510.00MHz
		n78 (Channel Bandwidth 90MHz)	3495.00MHz ~ 3504.99MHz
		n78 (Channel Bandwidth 100MHz)	3500.01MHz

Max. EIRP Power	Part 27Q		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
		n77 (Channel Bandwidth 10MHz)	329.610mW (25.18dBm)	317.687mW (25.02dBm)	288.403mW (24.60dBm)	202.302mW (23.06dBm)	81.283mW (19.10dBm)
		n77 (Channel Bandwidth 15MHz)	333.426mW (25.23dBm)	328.852mW (25.17dBm)	280.543mW (24.48dBm)	203.704mW (23.09dBm)	79.068mW (18.98dBm)
		n77 (Channel Bandwidth 20MHz)	338.065mW (25.29dBm)	320.627mW (25.06dBm)	288.403mW (24.60dBm)	204.174mW (23.10dBm)	81.658mW (19.12dBm)
		n77 (Channel Bandwidth 40MHz)	330.370mW (25.19dBm)	330.370mW (25.19dBm)	282.488mW (24.51dBm)	197.697mW (22.96dBm)	82.224mW (19.15dBm)
		n77 (Channel Bandwidth 50MHz)	338.065mW (25.29dBm)	325.087mW (25.12dBm)	286.418mW (24.57dBm)	196.336mW (22.93dBm)	79.250mW (18.99dBm)
		n77 (Channel Bandwidth 60MHz)	342.768mW (25.35dBm)	332.660mW (25.22dBm)	288.403mW (24.60dBm)	200.447mW (23.02dBm)	76.736mW (18.85dBm)
		n77 (Channel Bandwidth 80MHz)	334.965mW (25.25dBm)	331.894mW (25.21dBm)	285.102mW (24.55dBm)	192.752mW (22.85dBm)	81.658mW (19.12dBm)
		n77 (Channel Bandwidth 90MHz)	334.195mW (25.24dBm)	328.095mW (25.16dBm)	293.765mW (24.68dBm)	207.970mW (23.18dBm)	79.799mW (19.02dBm)
		n77 (Channel Bandwidth 100MHz)	345.144mW (25.38dBm)	331.894mW (25.21dBm)	290.402mW (24.63dBm)	190.546mW (22.80dBm)	78.163mW (18.93dBm)
Antenna Type	Refer to note						
Antenna Connector	Refer to note						
Accessory Device	NA						
Cable Supplied	NA						

Note:

1. This report is a supplementary report to the original BV CPS report no.: RFBGDY-WTW-P22120176.
Exhibit prepared for FCC Spot Check Verification report, the format, test items and amount of spot-check test data are decided by applicant's engineering judgment, for more details please refer to declaration letter exhibit. Radiated emission and output power verification worst test refer to original report.
2. The antenna information is listed as below.

Operating frequency band	Antenna	Gain (dBi)	Connector Type
Band 2	5G/4G Terminal Mount Monopole Antenna	2.92	SMA
Band 5		1.01	
Band 7		2.20	
Band 12		-1.17	
Band 25		2.97	
Band 38		2.18	
Band 41		2.20	
Band 66		3.44	
Band 71		1.72	
Band 77, 78		2.61	

* The EUT only support 1TX function.

* PRX antenna is primary RX & TX 2G, 3G 4G function and diversity RX 5G function.

DRX antenna is primary RX & TX 5G function and diversity RX 2G, 3G 4G function.

The rest of the antennas are non-functional.

* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3. The EUT supports the following ENDC configuration.

5G NR	FCC 5G FR1			ENDC
	Band	SCS	Bandwidth (MHz)	
	n5	15kHz	5/10/15/20	Band 2/66
	n41	30kHz	10/15/20/40/50/60/80/90/100	Band 26
	n66	15kHz	5/10/15/20/40	Band 5/12
	n71	15kHz	5/10/15/20	Band 2/66
	n77, n78	30kHz	10/15/20/40/50/60/80/90/100	Band 2/5/7/38/41/66

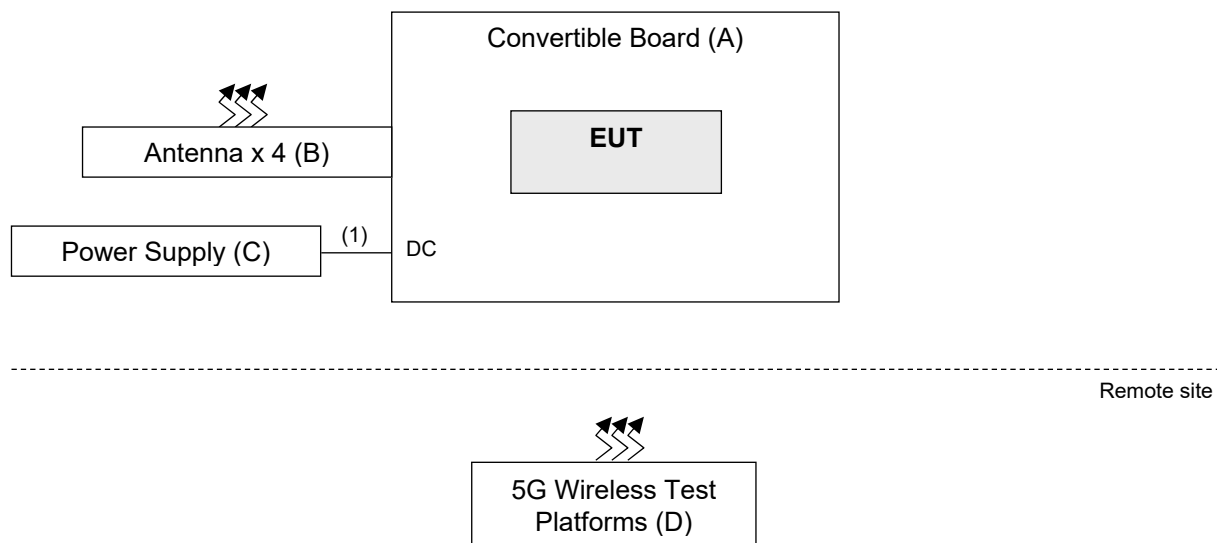
* This EUT support SA mode and NSA mode, after verification, SA mode was the worst case and chosen for final test.

4. 5G NR n78 has the same RF characteristic and power setting as 5G NR n77.

5. 5G NR n78 (3450-3550MHz) overlaps the entire frequency range of 5G NR n77 (3450-3550MHz).
Therefore, test data provided in this report covers 5G NR n78 as well as 5G NR n77.

6. 5G NR n78 (3700-3800MHz) overlaps the entire frequency range of 5G NR n77 (3700-3980MHz).
Therefore, test data provided in test report (Report No.: RFBGDY-WTW-P22120194-5) covers 5G NR n78 as well as 5G NR n77.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Convertible Board	NA	NA	NA	NA	Provided by client
B.	Antenna x 4	TAOGLAS	TG.55.8113	NA	NA	Provided by client
C.	DC Power supply	TECPEL	GPS-3030DD	GEO855739	NA	-
D.	5G Wireless Test Platforms	Keysight	E7515B	MY60102114	NA	-

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1	N	0	-

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on Z-plane for antenna. Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	630334 to 636332	630334 (3455.01MHz), 633334 (3500.01MHz), 636332 (3544.98MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		630500 to 636166	630500 (3457.50MHz), 633334 (3500.01MHz), 636166 (3542.49MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		630668 to 636000	630668 (3460.02MHz), 633334 (3500.01MHz), 636000 (3540.00MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		631334 to 635332	631334 (3470.01MHz), 633334 (3500.01MHz), 635332 (3529.98MHz)	40MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		631668 to 635000	631668 (3475.02MHz), 633334 (3500.01MHz), 635000 (3525.00MHz)	50MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		632000 to 634666	632000 (3480.00MHz), 633334 (3500.01MHz), 634666 (3519.99MHz)	60MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		632668 to 634000	632668 (3490.02MHz), 633334 (3500.01MHz), 634000 (3510.00MHz)	80MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		633000 to 633666	633000 (3495.00MHz), 633334 (3500.01MHz), 633666 (3504.99MHz)	90MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		633334	633334 (3500.01MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Radiated Emission Below 1GHz	633334	633334 (3500.01MHz)	100MHz	$\pi/2$ BPSK	1
-	Radiated Emission Above 1GHz	633334	633334 (3500.01MHz)	100MHz	$\pi/2$ BPSK	1

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25deg. C, 70%RH	4.2Vdc	James Yang
Radiated Emission	21deg. C, 67%RH	120Vac, 60Hz (System)	Vincent Chen

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and References

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile devices transmitting in the 3450-3550 MHz band are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

4.1.2 Test Procedures

Conducted Power Measurement:

The EUT was set up for the maximum power with 5GNR link data modulation and link up with simulator (Built-in power meter). Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

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

4.1.3 Test Setup

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

NR Band 77 (SCS 30kHz)				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		633334
		Frequency (MHz)		3500.01
100M	pi/2 BPSK	1	1	22.77
		1	137	22.40
		1	271	21.60
		135	0	21.60
		135	69	22.31
		135	138	21.79
		270	0	21.74
	QPSK	1	1	22.60
		1	137	22.24
		1	271	21.24
		135	0	21.23
		135	69	22.34
		135	138	21.60
		270	0	21.23
	16QAM	1	1	21.37
		1	137	22.02
		1	271	20.65
		135	0	20.28
		135	69	21.34
		135	138	20.55
		270	0	20.18
	64QAM	1	1	20.02
		1	137	20.19
		1	271	19.82
		135	0	19.97
		135	69	20.00
		135	138	20.15
		270	0	20.04
	256QAM	1	1	16.32
		1	137	16.22
		1	271	15.85
		135	0	15.94
		135	69	15.74
		135	138	15.83
		270	0	15.96

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		633000	633334	633666
		Frequency (MHz)		3495	3500.01	3504.99
90M	pi/2 BPSK	1	1	22.46	22.63	22.58
		1	123	22.36	22.53	22.51
		1	243	22.13	22.49	22.26
		120	0	21.82	21.93	21.99
		120	63	22.30	22.53	22.31
		120	125	22.06	22.01	21.83
		243	0	21.66	21.99	21.74
	QPSK	1	1	22.37	22.18	22.44
		1	123	22.12	22.30	22.40
		1	243	22.27	22.14	22.09
		120	0	21.37	21.52	21.20
		120	63	22.55	22.51	22.40
		120	125	21.53	21.76	21.42
		243	0	21.62	21.17	21.62
	16QAM	1	1	21.65	22.07	21.72
		1	123	21.77	21.66	21.55
		1	243	21.60	21.45	21.46
		120	0	20.69	20.62	20.24
		120	63	21.19	21.31	21.42
		120	125	20.21	20.66	20.65
		243	0	20.60	20.53	20.45
	64QAM	1	1	20.57	20.44	19.93
		1	123	19.86	19.97	20.20
		1	243	19.69	20.19	19.94
		120	0	19.77	19.68	19.99
		120	63	20.15	20.26	19.93
		120	125	19.86	20.13	19.79
		243	0	20.08	20.14	19.82
	256QAM	1	1	16.24	16.30	16.41
		1	123	15.98	16.24	15.89
		1	243	15.96	16.18	15.99
		120	0	15.76	15.76	15.84
		120	63	16.07	15.86	15.85
		120	125	15.64	15.85	16.05
		243	0	15.96	15.92	15.96

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		632668	633334	634000
		Frequency (MHz)		3490.02	3500.01	3510
80M	pi/2 BPSK	1	1	22.34	22.32	22.64
		1	109	22.52	22.53	22.13
		1	215	22.09	22.20	21.99
		108	0	21.93	21.73	22.02
		108	55	22.25	22.39	22.15
		108	109	21.84	21.66	22.00
		216	0	21.54	22.11	22.02
	QPSK	1	1	22.58	22.07	22.05
		1	109	22.47	22.60	22.13
		1	215	22.01	22.23	22.47
		108	0	21.11	21.42	21.09
		108	55	22.48	22.19	22.39
		108	109	21.44	21.29	21.05
		216	0	21.35	21.36	21.51
	16QAM	1	1	21.47	21.94	21.65
		1	109	21.67	21.43	21.44
		1	215	21.23	21.44	21.42
		108	0	20.25	20.24	20.43
		108	55	21.47	21.66	21.55
		108	109	20.68	20.61	20.18
		216	0	20.11	20.33	20.65
	64QAM	1	1	20.18	20.24	19.90
		1	109	19.78	20.01	19.87
		1	215	20.09	19.90	19.65
		108	0	20.09	19.70	19.97
		108	55	19.69	20.20	19.95
		108	109	20.13	19.81	19.80
		216	0	19.59	19.86	19.90
	256QAM	1	1	16.28	16.51	16.48
		1	109	15.86	16.09	15.88
		1	215	16.05	15.93	16.23
		108	0	15.61	15.57	15.82
		108	55	15.94	15.95	16.11
		108	109	15.78	15.84	16.13
		216	0	15.76	15.66	16.09

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		632000	633334	634666
		Frequency (MHz)		3480	3500.01	3519.99
60M	pi/2 BPSK	1	1	22.11	22.63	22.29
		1	81	22.33	22.74	22.29
		1	160	22.16	22.04	22.33
		81	0	21.89	21.98	21.73
		81	41	22.32	22.33	22.13
		81	81	21.85	22.05	21.80
		162	0	21.59	21.68	21.89
	QPSK	1	1	22.25	22.32	22.40
		1	81	22.10	22.61	22.45
		1	160	21.96	22.29	22.31
		81	0	21.61	21.11	21.40
		81	41	22.24	22.55	22.58
		81	81	21.72	21.25	21.45
		162	0	21.26	21.54	21.35
	16QAM	1	1	21.87	21.63	21.99
		1	81	21.37	21.95	21.53
		1	160	21.15	21.48	21.27
		81	0	20.20	20.17	20.52
		81	41	21.56	21.36	21.60
		81	81	20.37	20.21	20.17
		162	0	20.30	20.54	20.24
	64QAM	1	1	20.41	20.02	20.12
		1	81	20.26	20.35	20.21
		1	160	20.02	19.99	20.00
		81	0	19.54	20.21	19.78
		81	41	19.90	20.20	20.14
		81	81	19.94	20.00	19.68
		162	0	19.65	19.78	20.20
	256QAM	1	1	16.24	16.18	16.22
		1	81	16.22	16.10	16.17
		1	160	15.98	15.99	16.00
		81	0	15.81	15.73	15.63
		81	41	16.12	16.06	16.24
		81	81	15.95	15.67	15.79
		162	0	15.89	15.93	16.00

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		631668	633334	635000
		Frequency (MHz)		3475.02	3500.01	3525
50M	pi/2 BPSK	1	1	22.42	22.68	22.30
		1	67	22.42	22.25	22.44
		1	131	22.24	21.96	22.55
		64	0	22.03	22.03	21.56
		64	35	22.51	22.55	22.62
		64	69	21.92	21.82	21.70
		128	0	22.00	22.03	22.11
	QPSK	1	1	22.14	22.19	22.46
		1	67	22.51	22.50	22.39
		1	131	22.22	22.08	22.28
		64	0	21.70	21.32	21.45
		64	35	22.17	22.32	22.19
		64	69	21.29	21.56	21.27
		128	0	21.19	21.24	21.22
	16QAM	1	1	21.58	21.88	21.81
		1	67	21.60	21.96	21.37
		1	131	21.43	21.18	21.62
		64	0	20.48	20.27	20.58
		64	35	21.41	21.31	21.25
		64	69	20.52	20.60	20.23
		128	0	20.19	20.59	20.67
	64QAM	1	1	20.23	20.32	20.27
		1	67	20.23	19.93	20.08
		1	131	20.09	19.93	19.73
		64	0	19.60	19.87	19.89
		64	35	19.69	19.83	19.95
		64	69	19.69	20.27	20.06
		128	0	19.72	19.72	20.18
	256QAM	1	1	16.38	16.30	15.97
		1	67	16.31	16.10	16.21
		1	131	15.60	15.80	16.21
		64	0	15.59	15.73	15.77
		64	35	16.07	16.08	16.20
		64	69	15.88	16.02	16.11
		128	0	15.69	15.83	16.01

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		631334	633334	635332
		Frequency (MHz)		3470.01	3500.01	3529.98
40M	pi/2 BPSK	1	1	22.58	22.50	22.38
		1	53	22.51	22.41	22.57
		1	104	22.41	22.26	22.05
		50	0	22.21	21.76	21.72
		50	28	22.44	22.54	22.38
		50	56	21.96	21.89	22.18
		100	0	22.01	21.84	21.72
	QPSK	1	1	22.23	22.23	22.37
		1	53	22.34	22.30	22.00
		1	104	22.37	22.45	21.92
		50	0	21.41	21.41	21.14
		50	28	22.58	22.38	22.49
		50	56	21.37	21.19	21.38
		100	0	21.50	21.17	21.24
	16QAM	1	1	21.83	21.90	21.88
		1	53	21.75	21.49	21.52
		1	104	21.66	20.97	21.62
		50	0	20.55	20.17	20.05
		50	28	21.44	21.18	21.25
		50	56	20.59	20.42	20.25
		100	0	20.11	20.33	20.33
	64QAM	1	1	20.15	20.16	20.14
		1	53	20.12	20.04	20.35
		1	104	19.88	20.09	19.51
		50	0	19.77	19.81	19.63
		50	28	20.09	19.89	20.18
		50	56	20.13	20.30	20.13
		100	0	19.72	20.08	20.10
	256QAM	1	1	16.35	16.21	16.54
		1	53	16.25	15.91	16.17
		1	104	15.72	15.94	16.32
		50	0	15.81	15.74	15.87
		50	28	15.61	15.80	15.73
		50	56	15.88	15.67	15.70
		100	0	15.93	15.93	16.13

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		630668	633334	636000
		Frequency (MHz)		3460.02	3500.01	3540
20M	pi/2 BPSK	1	1	22.60	22.46	22.52
		1	26	22.14	22.17	22.29
		1	49	22.18	22.10	22.34
		25	0	22.10	21.60	21.63
		25	13	22.37	22.68	22.50
		25	26	22.03	22.02	21.79
		50	0	21.82	21.70	22.10
	QPSK	1	1	22.24	22.45	22.36
		1	26	22.26	22.39	22.21
		1	49	22.17	22.04	22.24
		25	0	21.58	21.29	21.10
		25	13	22.33	22.26	22.19
		25	26	21.23	21.37	21.33
		50	0	21.14	21.52	21.17
	16QAM	1	1	21.85	21.99	21.64
		1	26	21.76	21.64	21.30
		1	49	21.16	21.17	21.33
		25	0	20.40	20.15	20.14
		25	13	21.66	21.24	21.72
		25	26	20.63	20.61	20.24
		50	0	20.45	20.46	20.75
	64QAM	1	1	20.49	20.42	19.90
		1	26	20.29	20.10	20.24
		1	49	20.01	20.27	19.61
		25	0	19.62	19.77	19.72
		25	13	19.97	19.76	19.89
		25	26	19.88	20.13	19.78
		50	0	19.61	19.70	19.97
	256QAM	1	1	16.42	16.51	16.03
		1	26	16.08	15.81	16.26
		1	49	15.77	15.98	16.30
		25	0	15.92	15.55	15.52
		25	13	16.14	15.89	15.86
		25	26	15.71	15.83	15.81
		50	0	16.09	15.66	16.15

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		630500	633334	636166
		Frequency (MHz)		3457.5	3500.01	3542.49
15M	pi/2 BPSK	1	1	22.29	22.57	22.38
		1	19	22.17	22.62	22.27
		1	36	22.29	22.16	22.39
		18	0	22.16	21.98	21.63
		18	10	22.58	22.49	22.36
		18	20	22.08	21.93	22.07
		36	0	21.69	21.81	21.73
	QPSK	1	1	22.38	22.56	22.21
		1	19	22.23	22.37	22.35
		1	36	22.01	22.22	21.99
		18	0	21.35	21.36	21.11
		18	10	22.47	22.45	22.36
		18	20	21.32	21.29	21.62
		36	0	21.05	21.56	21.64
	16QAM	1	1	21.77	21.87	21.61
		1	19	21.49	21.73	21.49
		1	36	21.51	21.20	21.55
		18	0	20.43	20.55	20.19
		18	10	21.10	21.35	21.51
		18	20	20.15	20.58	20.24
		36	0	20.22	20.41	20.39
	64QAM	1	1	20.21	20.48	19.90
		1	19	20.16	20.27	19.90
		1	36	19.86	19.94	19.79
		18	0	19.54	19.90	19.57
		18	10	20.05	19.79	19.82
		18	20	19.69	19.75	19.74
		36	0	19.65	20.05	20.25
	256QAM	1	1	16.37	16.17	16.00
		1	19	15.94	16.08	16.06
		1	36	15.86	15.72	15.97
		18	0	15.92	15.69	15.50
		18	10	15.76	16.18	16.12
		18	20	15.69	15.63	15.75
		36	0	15.83	15.76	16.07

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		630334	633334	636332
		Frequency (MHz)		3455.01	3500.01	3544.98
10M	pi/2 BPSK	1	1	22.18	22.57	22.30
		1	11	22.20	22.39	22.27
		1	22	22.35	22.14	22.24
		12	0	22.01	22.02	21.65
		12	6	22.22	22.52	22.54
		12	12	21.78	21.68	21.73
		24	0	21.68	22.07	21.81
	QPSK	1	1	22.41	22.28	22.15
		1	11	22.25	22.28	22.40
		1	22	22.24	22.28	22.28
		12	0	21.60	21.59	21.17
		12	6	22.24	22.38	22.41
		12	12	21.50	21.55	21.60
		24	0	21.26	21.24	21.24
	16QAM	1	1	21.81	21.99	21.58
		1	11	21.78	21.55	21.41
		1	22	21.25	21.27	21.17
		12	0	20.26	20.62	20.13
		12	6	21.33	21.65	21.27
		12	12	20.31	20.23	20.13
		24	0	20.26	20.31	20.55
	64QAM	1	1	20.27	20.45	20.19
		1	11	20.02	19.91	19.92
		1	22	20.13	19.74	19.64
		12	0	19.75	20.09	19.80
		12	6	19.76	20.00	19.87
		12	12	19.98	20.07	20.03
		24	0	19.51	19.65	19.77
	256QAM	1	1	16.05	16.49	16.10
		1	11	16.17	16.20	16.14
		1	22	15.63	15.71	16.00
		12	0	15.76	15.97	15.86
		12	6	15.58	15.69	15.82
		12	12	16.06	15.71	15.74
		24	0	15.65	15.91	15.68

EIRP Power (dBm)

NR Band 77 (SCS 30kHz)				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		633334
		Frequency (MHz)		3500.01
100M	pi/2 BPSK	1	1	25.38
		1	137	25.01
		1	271	24.21
		135	0	24.21
		135	69	24.92
		135	138	24.40
		270	0	24.35
	QPSK	1	1	25.21
		1	137	24.85
		1	271	23.85
		135	0	23.84
		135	69	24.95
		135	138	24.21
		270	0	23.84
	16QAM	1	1	23.98
		1	137	24.63
		1	271	23.26
		135	0	22.89
		135	69	23.95
		135	138	23.16
		270	0	22.79
	64QAM	1	1	22.63
		1	137	22.80
		1	271	22.43
		135	0	22.58
		135	69	22.61
		135	138	22.76
		270	0	22.65
	256QAM	1	1	18.93
		1	137	18.83
		1	271	18.46
		135	0	18.55
		135	69	18.35
		135	138	18.44
		270	0	18.57

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		633000	633334	633666
		Frequency (MHz)		3495	3500.01	3504.99
90M	pi/2 BPSK	1	1	25.07	25.24	25.19
		1	123	24.97	25.14	25.12
		1	243	24.74	25.10	24.87
		120	0	24.43	24.54	24.60
		120	63	24.91	25.14	24.92
		120	125	24.67	24.62	24.44
		243	0	24.27	24.60	24.35
	QPSK	1	1	24.98	24.79	25.05
		1	123	24.73	24.91	25.01
		1	243	24.88	24.75	24.70
		120	0	23.98	24.13	23.81
		120	63	25.16	25.12	25.01
		120	125	24.14	24.37	24.03
		243	0	24.23	23.78	24.23
	16QAM	1	1	24.26	24.68	24.33
		1	123	24.38	24.27	24.16
		1	243	24.21	24.06	24.07
		120	0	23.30	23.23	22.85
		120	63	23.80	23.92	24.03
		120	125	22.82	23.27	23.26
		243	0	23.21	23.14	23.06
	64QAM	1	1	23.18	23.05	22.54
		1	123	22.47	22.58	22.81
		1	243	22.30	22.80	22.55
		120	0	22.38	22.29	22.60
		120	63	22.76	22.87	22.54
		120	125	22.47	22.74	22.40
		243	0	22.69	22.75	22.43
	256QAM	1	1	18.85	18.91	19.02
		1	123	18.59	18.85	18.50
		1	243	18.57	18.79	18.60
		120	0	18.37	18.37	18.45
		120	63	18.68	18.47	18.46
		120	125	18.25	18.46	18.66
		243	0	18.57	18.53	18.57

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		632668	633334	634000
		Frequency (MHz)		3490.02	3500.01	3510
80M	pi/2 BPSK	1	1	24.95	24.93	25.25
		1	109	25.13	25.14	24.74
		1	215	24.70	24.81	24.60
		108	0	24.54	24.34	24.63
		108	55	24.86	25.00	24.76
		108	109	24.45	24.27	24.61
		216	0	24.15	24.72	24.63
	QPSK	1	1	25.19	24.68	24.66
		1	109	25.08	25.21	24.74
		1	215	24.62	24.84	25.08
		108	0	23.72	24.03	23.70
		108	55	25.09	24.80	25.00
		108	109	24.05	23.90	23.66
		216	0	23.96	23.97	24.12
	16QAM	1	1	24.08	24.55	24.26
		1	109	24.28	24.04	24.05
		1	215	23.84	24.05	24.03
		108	0	22.86	22.85	23.04
		108	55	24.08	24.27	24.16
		108	109	23.29	23.22	22.79
		216	0	22.72	22.94	23.26
	64QAM	1	1	22.79	22.85	22.51
		1	109	22.39	22.62	22.48
		1	215	22.70	22.51	22.26
		108	0	22.70	22.31	22.58
		108	55	22.30	22.81	22.56
		108	109	22.74	22.42	22.41
		216	0	22.20	22.47	22.51
	256QAM	1	1	18.89	19.12	19.09
		1	109	18.47	18.70	18.49
		1	215	18.66	18.54	18.84
		108	0	18.22	18.18	18.43
		108	55	18.55	18.56	18.72
		108	109	18.39	18.45	18.74
		216	0	18.37	18.27	18.70

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		632000	633334	634666
		Frequency (MHz)		3480	3500.01	3519.99
60M	pi/2 BPSK	1	1	24.72	25.24	24.90
		1	81	24.94	25.35	24.90
		1	160	24.77	24.65	24.94
		81	0	24.50	24.59	24.34
		81	41	24.93	24.94	24.74
		81	81	24.46	24.66	24.41
		162	0	24.20	24.29	24.50
	QPSK	1	1	24.86	24.93	25.01
		1	81	24.71	25.22	25.06
		1	160	24.57	24.90	24.92
		81	0	24.22	23.72	24.01
		81	41	24.85	25.16	25.19
		81	81	24.33	23.86	24.06
		162	0	23.87	24.15	23.96
	16QAM	1	1	24.48	24.24	24.60
		1	81	23.98	24.56	24.14
		1	160	23.76	24.09	23.88
		81	0	22.81	22.78	23.13
		81	41	24.17	23.97	24.21
		81	81	22.98	22.82	22.78
		162	0	22.91	23.15	22.85
	64QAM	1	1	23.02	22.63	22.73
		1	81	22.87	22.96	22.82
		1	160	22.63	22.60	22.61
		81	0	22.15	22.82	22.39
		81	41	22.51	22.81	22.75
		81	81	22.55	22.61	22.29
		162	0	22.26	22.39	22.81
	256QAM	1	1	18.85	18.79	18.83
		1	81	18.83	18.71	18.78
		1	160	18.59	18.60	18.61
		81	0	18.42	18.34	18.24
		81	41	18.73	18.67	18.85
		81	81	18.56	18.28	18.40
		162	0	18.50	18.54	18.61

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		631668	633334	635000
		Frequency (MHz)		3475.02	3500.01	3525
50M	pi/2 BPSK	1	1	25.03	25.29	24.91
		1	67	25.03	24.86	25.05
		1	131	24.85	24.57	25.16
		64	0	24.64	24.64	24.17
		64	35	25.12	25.16	25.23
		64	69	24.53	24.43	24.31
		128	0	24.61	24.64	24.72
	QPSK	1	1	24.75	24.80	25.07
		1	67	25.12	25.11	25.00
		1	131	24.83	24.69	24.89
		64	0	24.31	23.93	24.06
		64	35	24.78	24.93	24.80
		64	69	23.90	24.17	23.88
		128	0	23.80	23.85	23.83
	16QAM	1	1	24.19	24.49	24.42
		1	67	24.21	24.57	23.98
		1	131	24.04	23.79	24.23
		64	0	23.09	22.88	23.19
		64	35	24.02	23.92	23.86
		64	69	23.13	23.21	22.84
		128	0	22.80	23.20	23.28
	64QAM	1	1	22.84	22.93	22.88
		1	67	22.84	22.54	22.69
		1	131	22.70	22.54	22.34
		64	0	22.21	22.48	22.50
		64	35	22.30	22.44	22.56
		64	69	22.30	22.88	22.67
		128	0	22.33	22.33	22.79
	256QAM	1	1	18.99	18.91	18.58
		1	67	18.92	18.71	18.82
		1	131	18.21	18.41	18.82
		64	0	18.20	18.34	18.38
		64	35	18.68	18.69	18.81
		64	69	18.49	18.63	18.72
		128	0	18.30	18.44	18.62

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		631334	633334	635332
		Frequency (MHz)		3470.01	3500.01	3529.98
40M	pi/2 BPSK	1	1	25.19	25.11	24.99
		1	53	25.12	25.02	25.18
		1	104	25.02	24.87	24.66
		50	0	24.82	24.37	24.33
		50	28	25.05	25.15	24.99
		50	56	24.57	24.50	24.79
		100	0	24.62	24.45	24.33
	QPSK	1	1	24.84	24.84	24.98
		1	53	24.95	24.91	24.61
		1	104	24.98	25.06	24.53
		50	0	24.02	24.02	23.75
		50	28	25.19	24.99	25.10
		50	56	23.98	23.80	23.99
		100	0	24.11	23.78	23.85
	16QAM	1	1	24.44	24.51	24.49
		1	53	24.36	24.10	24.13
		1	104	24.27	23.58	24.23
		50	0	23.16	22.78	22.66
		50	28	24.05	23.79	23.86
		50	56	23.20	23.03	22.86
		100	0	22.72	22.94	22.94
	64QAM	1	1	22.76	22.77	22.75
		1	53	22.73	22.65	22.96
		1	104	22.49	22.70	22.12
		50	0	22.38	22.42	22.24
		50	28	22.70	22.50	22.79
		50	56	22.74	22.91	22.74
		100	0	22.33	22.69	22.71
	256QAM	1	1	18.96	18.82	19.15
		1	53	18.86	18.52	18.78
		1	104	18.33	18.55	18.93
		50	0	18.42	18.35	18.48
		50	28	18.22	18.41	18.34
		50	56	18.49	18.28	18.31
		100	0	18.54	18.54	18.74

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		630668	633334	636000
		Frequency (MHz)		3460.02	3500.01	3540
20M	pi/2 BPSK	1	1	25.21	25.07	25.13
		1	26	24.75	24.78	24.90
		1	49	24.79	24.71	24.95
		25	0	24.71	24.21	24.24
		25	13	24.98	25.29	25.11
		25	26	24.64	24.63	24.40
		50	0	24.43	24.31	24.71
	QPSK	1	1	24.85	25.06	24.97
		1	26	24.87	25.00	24.82
		1	49	24.78	24.65	24.85
		25	0	24.19	23.90	23.71
		25	13	24.94	24.87	24.80
		25	26	23.84	23.98	23.94
		50	0	23.75	24.13	23.78
	16QAM	1	1	24.46	24.60	24.25
		1	26	24.37	24.25	23.91
		1	49	23.77	23.78	23.94
		25	0	23.01	22.76	22.75
		25	13	24.27	23.85	24.33
		25	26	23.24	23.22	22.85
		50	0	23.06	23.07	23.36
	64QAM	1	1	23.10	23.03	22.51
		1	26	22.90	22.71	22.85
		1	49	22.62	22.88	22.22
		25	0	22.23	22.38	22.33
		25	13	22.58	22.37	22.50
		25	26	22.49	22.74	22.39
		50	0	22.22	22.31	22.58
	256QAM	1	1	19.03	19.12	18.64
		1	26	18.69	18.42	18.87
		1	49	18.38	18.59	18.91
		25	0	18.53	18.16	18.13
		25	13	18.75	18.50	18.47
		25	26	18.32	18.44	18.42
		50	0	18.70	18.27	18.76

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		630500	633334	636166
		Frequency (MHz)		3457.5	3500.01	3542.49
15M	pi/2 BPSK	1	1	24.90	25.18	24.99
		1	19	24.78	25.23	24.88
		1	36	24.90	24.77	25.00
		18	0	24.77	24.59	24.24
		18	10	25.19	25.10	24.97
		18	20	24.69	24.54	24.68
		36	0	24.30	24.42	24.34
	QPSK	1	1	24.99	25.17	24.82
		1	19	24.84	24.98	24.96
		1	36	24.62	24.83	24.60
		18	0	23.96	23.97	23.72
		18	10	25.08	25.06	24.97
		18	20	23.93	23.90	24.23
		36	0	23.66	24.17	24.25
	16QAM	1	1	24.38	24.48	24.22
		1	19	24.10	24.34	24.10
		1	36	24.12	23.81	24.16
		18	0	23.04	23.16	22.80
		18	10	23.71	23.96	24.12
		18	20	22.76	23.19	22.85
		36	0	22.83	23.02	23.00
	64QAM	1	1	22.82	23.09	22.51
		1	19	22.77	22.88	22.51
		1	36	22.47	22.55	22.40
		18	0	22.15	22.51	22.18
		18	10	22.66	22.40	22.43
		18	20	22.30	22.36	22.35
		36	0	22.26	22.66	22.86
	256QAM	1	1	18.98	18.78	18.61
		1	19	18.55	18.69	18.67
		1	36	18.47	18.33	18.58
		18	0	18.53	18.30	18.11
		18	10	18.37	18.79	18.73
		18	20	18.30	18.24	18.36
		36	0	18.44	18.37	18.68

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		630334	633334	636332
		Frequency (MHz)		3455.01	3500.01	3544.98
10M	pi/2 BPSK	1	1	24.79	25.18	24.91
		1	11	24.81	25.00	24.88
		1	22	24.96	24.75	24.85
		12	0	24.62	24.63	24.26
		12	6	24.83	25.13	25.15
		12	12	24.39	24.29	24.34
		24	0	24.29	24.68	24.42
	QPSK	1	1	25.02	24.89	24.76
		1	11	24.86	24.89	25.01
		1	22	24.85	24.89	24.89
		12	0	24.21	24.20	23.78
		12	6	24.85	24.99	25.02
		12	12	24.11	24.16	24.21
		24	0	23.87	23.85	23.85
	16QAM	1	1	24.42	24.60	24.19
		1	11	24.39	24.16	24.02
		1	22	23.86	23.88	23.78
		12	0	22.87	23.23	22.74
		12	6	23.94	24.26	23.88
		12	12	22.92	22.84	22.74
		24	0	22.87	22.92	23.16
	64QAM	1	1	22.88	23.06	22.80
		1	11	22.63	22.52	22.53
		1	22	22.74	22.35	22.25
		12	0	22.36	22.70	22.41
		12	6	22.37	22.61	22.48
		12	12	22.59	22.68	22.64
		24	0	22.12	22.26	22.38
	256QAM	1	1	18.66	19.10	18.71
		1	11	18.78	18.81	18.75
		1	22	18.24	18.32	18.61
		12	0	18.37	18.58	18.47
		12	6	18.19	18.30	18.43
		12	12	18.67	18.32	18.35
		24	0	18.26	18.52	18.29

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

According to FCC 27.53(n), for operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.

4.2.2 Test Procedure

- a. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following C63.26 section 5.5 and 5.2.7.
$$\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8;$$
 where D is the measurement distance (in the far field region) in m.
$$\text{ERP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8 - 2.15;$$
 where D is the measurement distance (in the far field region) in m.

Note:

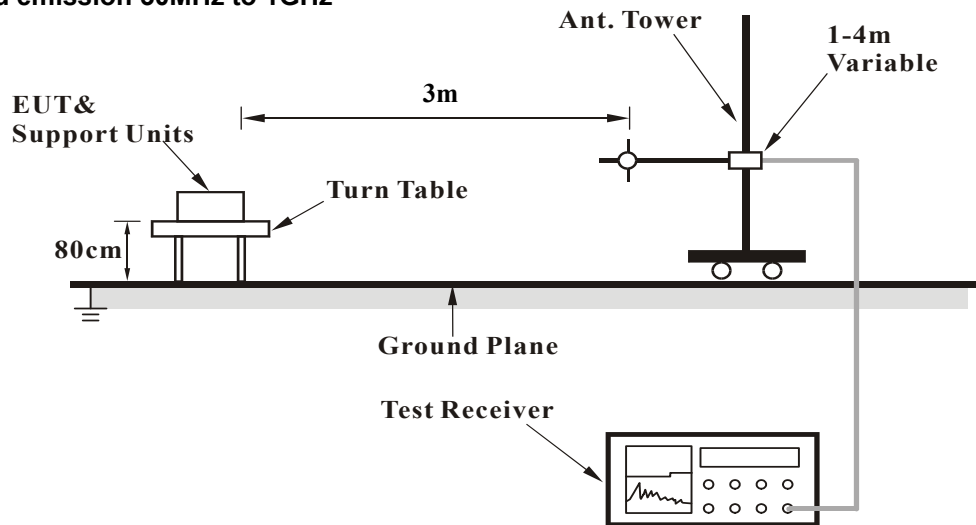
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

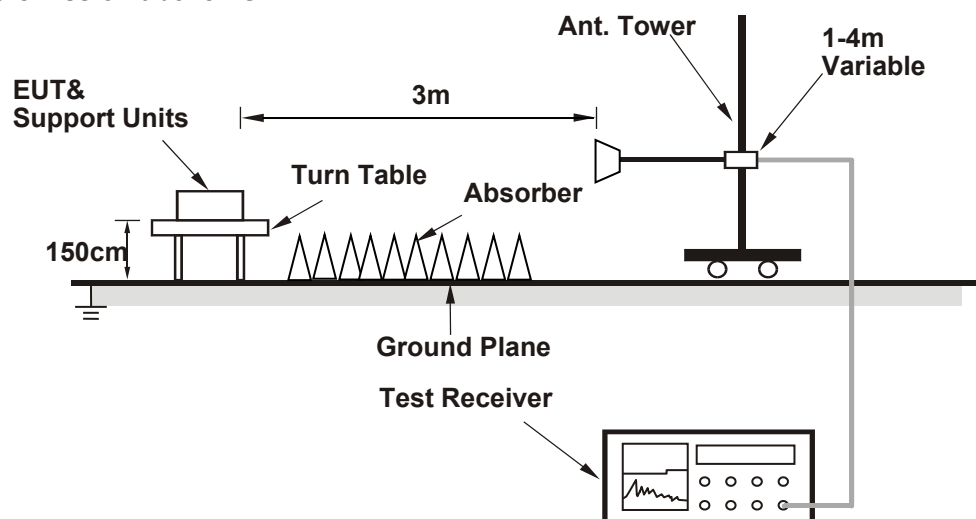
No deviation.

4.2.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

4.2.5 Test Results

Below 1GHz

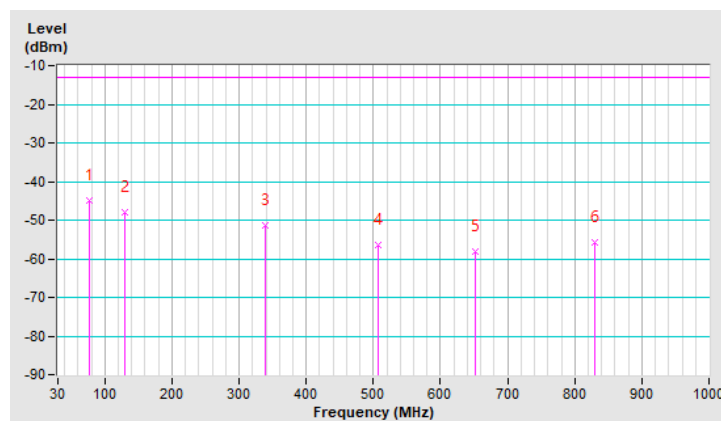
5GNR n77 (Part 27Q), Channel Bandwidth 100MHz

Mode	TX channel 633334 (3500.01MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	77.53	-44.93	-13.00	-31.93	1.88 H	256	66.52	-111.45
2	129.91	-47.89	-13.00	-34.89	2.42 H	91	60.78	-108.67
3	339.43	-51.46	-13.00	-38.46	3.54 H	196	54.73	-106.19
4	506.27	-56.48	-13.00	-43.48	1.39 H	142	45.48	-101.96
5	651.77	-58.24	-13.00	-45.24	1.72 H	250	41.37	-99.61
6	829.28	-55.91	-13.00	-42.91	3.76 H	98	40.87	-96.78

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

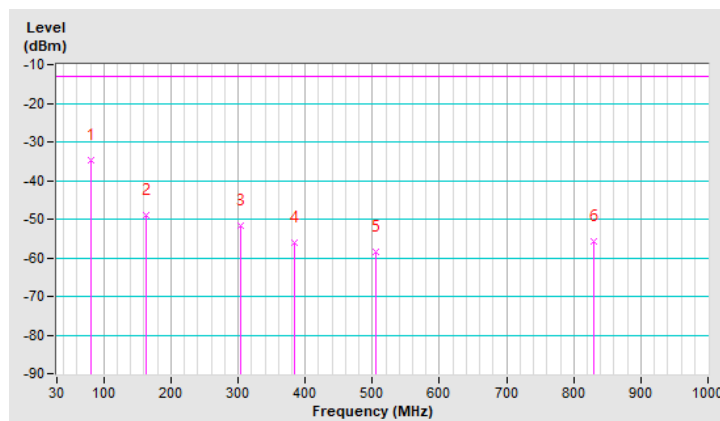


Mode	TX channel 633334 (3500.01MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	80.44	-34.86	-13.00	-21.86	2.49 V	224	77.34	-112.20
2	162.89	-48.88	-13.00	-35.88	2.35 V	197	59.08	-107.96
3	304.51	-51.70	-13.00	-38.70	2.02 V	168	55.21	-106.91
4	383.08	-56.06	-13.00	-43.06	2.34 V	170	48.96	-105.02
5	505.30	-58.46	-13.00	-45.46	1.95 V	136	43.53	-101.99
6	830.25	-55.72	-13.00	-42.72	1.79 V	215	41.06	-96.78

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



Above 1GHz

5GNR n77 (Part 27Q), Channel Bandwidth 100MHz

Mode	TX channel 633334 (3500.01MHz)	Frequency Range	1GHz ~ 40GHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7000.02	-42.53	-13.00	-29.53	2.26 H	90	58.39	-100.92
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7000.02	-40.18	-13.00	-27.18	1.32 V	153	60.74	-100.92

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

If you have any comments, please feel free to contact us at the following:

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

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