

LETTER OF REQUEST

PERMISSIVE CHANGE

27 October 2023

We, LG Electronics Inc., as a manufacturer of following product, hereby submit Class 2 Permissive Change application for the FCC and Class 2 and 3 Permissive Change application ISED in the filings following changes applied to change additional Antenna in the filings and compliance of product throughout additional testing.

FCC	FCC ID	BEJTFGMEIBBCD1
	Original Grant Date	18 March 2023
	Equipment Type	PCS Licensed Transmitter
ISED	IC Certification Number	2703H-TFGMEIBBCD1
	Approved Date	17 March 2023
	HVIN/PMN	TFGMEIBBCD1, TFGMEIBBCD2, TFGMEIBBCD3

A. ISED Standard Update and Power reduction software

ISED Canada has published RSS-192 Issue 1 and revise RSS-192 Issue 5 to have extended frequency range to cover n77 and n78. As power limit of RSS-192 has been changed, the power reduction applied in band n77 and n78 at initial certification also has been removed. To comply this new requirement, both RSS-192 Issue 5 and RSS-198 Issue 1 are newly tested with FVIN SW170. There is no hardware change and only power reduction is removed.

This change also applied to FCC Certification. The power reduction mechanism only affects radiated power which was measured in radiated. MIMO output power in n77 and n78 are newly measured to demonstrate radiated power without power reduction mechanism still comply the EIRP limit.

Standard / Specification	Certified information		Updated information	
	Issue	Frequency range	Issue	Frequency range
NR band 77, 78	RSS-192 Issue 4	3,450 ~ 3,650MHz	RSS-192 Issue 5	3,450 ~ 3,900MHz
	RSS-197 Issue 1	3,650 ~ 3,700MHz	RSS-198 Issue 1	3,900 ~ 3,980MHz

Certified information			Updated information		
H/W Version	S/W Version	FVIN	H/W Version	S/W Version	FVIN
Rev.D	SW168	N/A	Rev.D	SW170	SW170

B. External Antenna Information

We have additional antenna called 87832572 and gain was measured in each band.

Antenna scenario [SISO]	Rat.	Band	Operating Freq. (MHz)		Antenna Gain [dBi]		Maximum Gain [dB]	Worst Antenna
			Low	High	84933920 [Original Grant]	87832572 [Additional]		
Primary Cell	NR	n71	663	698	0.37	-2.88	0.37	Original Ant.
Primary Cell	L, NR	B12(n12)	699	716	-1.05	0.67	0.67	<u>Additional Ant.</u>
Primary Cell	L, NR	B13(n13)	777	787	-0.53	3.72	3.72	<u>Additional Ant.</u>
Primary Cell	L, NR	B14(n14)	788	798	-0.53	3.72	3.72	<u>Additional Ant.</u>
Primary Cell	W, L, NR	B5(n5)	824	849	0.37	5.22	5.22	<u>Additional Ant.</u>
Primary Cell	NR	n26	814	849	0.37	5.22	5.22	<u>Additional Ant.</u>
Primary Cell	W, L	B4	1710	1755	5.19	-1.24	5.19	Original Ant.
Primary Cell	L, NR	B66(n66)	1710	1780	5.54	2.50	5.54	Original Ant.
Primary Cell	W, L, NR	B2(n2)	1850	1910	5.12	5.18	5.18	<u>Additional Ant.</u>
Primary Cell	NR	n25	1850	1915	5.12	5.18	5.18	<u>Additional Ant.</u>
Primary Cell	L, NR	B7(n7)	2500	2570	5.99	4.16	5.99	Original Ant.
Secondary Cell	NR	n41	2496	2690	0.09	3.52	3.52	<u>Additional Ant.</u>
Secondary Cell	NR	n77/n78_FCC Low	3450	3550	3.24	2.89	3.24	Original Ant.
Secondary Cell	NR	n77/n78_ISED Low	3450	3900	3.24	2.89	3.24	Original Ant.
Secondary Cell	NR	n77/n78_ISED High	3900	3980	3.24	0.63	3.24	Original Ant.
Secondary Cell	NR	n78_FCC High	3700	3800	3.24	0.63	3.24	Original Ant.
Secondary Cell	NR	n77/n78_FCC High	3700	3980	3.24	2.76	3.24	Original Ant.
Antenna scenario [MIMO]	Rat.	Band	Operating Freq. (MHz)		Antenna Gain [dBi]		Maximum Gain [dBi]	Worst Antenna
			Low	High	84933920 [Original Grant]	87832572 [Additional]		
Primary + Secondary Cell	NR	n41	2496	2690	6.54	6.86	6.86	<u>Additional Ant.</u>
Primary + Secondary Cell	NR	n77/n78_FCC Low	3450	3550	7.91	6.42	7.91	Original Ant.
Primary + Secondary Cell	NR	n78_FCC High	3700	3800	7.91	5.43	7.91	Original Ant.
Primary + Secondary Cell	NR	n77/n78_FCC High	3700	3980	7.91	6.36	7.91	Original Ant.
Primary + Secondary Cell	NR	n77/n78_ISED Low	3450	3900	7.91	6.42	7.91	Original Ant.
Primary + Secondary Cell	NR	n77/n78_ISED High	3900	3980	7.91	5.43	7.91	Original Ant.

This product is a professional installation equipment and installed by vehicle manufacturer.
As antennas will be installed by vehicle manufacturer.
Vehicle manufacturer will implement specific software version for each antenna and vehicle.

With the new antenna, product complies E.R.P. and E.I.R.P. limits in all applicable standards.

C. Worst case Selections for Radiated Spurious Emissions

The worst-case scenarios have been chosen for testing mode (below 1GHz, above 1GHz) based on the worst margin of original Radiated spurious emission on testing result of 5G NR.

Mode	Radiated spurious emission			
	Band	Worst frequency (MHz)	84933920 [Original]	87832572 [C2PC]
5G NR	n13	782	-43.29 dBm	-54.86
	n66	1,712.5	-14.98 dBm	Noise floor

D. RF Exposure (SAR)

The manufacture of the Vehicles mounts the device (Internal Antennal) and external Antenna (87832572) on a car, the minimum distance between this device and the user could be 30 mm.

The RF Exposure evaluation (SAR) is performed for both internal and external antenna with separation distance 30 mm.

The Vehicles manufacturer cannot use it at a distance less than 30 mm, and if necessary, an Additional Ant. evaluation must be performed and C2PC procedure is required. RF exposure evaluation of the device was conducted at 30mm and any installation on a motorcycle with the less distaste must not accepted.

E. Declaration

After all the tests perform on updated standards, we declare, as a manufacturer, the product still complies all the RSS standards requirements. [C3PC]

The model with Additional antenna complies ERP/EIRP requirements, RF Exposure (SAR) limits at 30cm and the limits in Parts 22, 24, 27, and 90 of FCC rules and RSS standards. [C2PC]

Based on technical analysis mentioned above, we hereby request permissive change for both FCC and ISED certification.

Sincerely Yours



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